Sericulture in Andhra Pradesh: A Sustainable Approach to Sericulture Enterprise and Rural Youth Empowerment

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Abstract— *Silk has long been admired for its richness, beauty, and timeless elegance. Even today, no fabric can rival its natural shine and luxurious appeal. Celebrated as the "queen of textiles," silk has become deeply embedded in India's culture and traditions, often worn during religious rituals and festival occasions. Andhra Pradesh, a state with a rich cultural heritage, stands as the second-largest producer of mulberry silk in India and is widely recognized for its internationally acclaimed bivoltine silk. Sericulture is not only a vital contributor to the state's economy but also provides regular employment, especially to rural youth.*

Andhra Pradesh located on the southeastern coast of India, Andhra Pradesh comprises two main regions-Coastal Andhra and Rayalaseema. In today's context, the youth are seen as the foundation and driving force of the nation's future. With creativity, energy, and innovation, young people possess the potential to bring about transformative change. However, rural youth often face significant challenges in securing sustainable livelihoods. Their talents remain underutilized due to limited opportunities and systemic neglect.

To address this gap, it is crucial to make agriculture and allied sectors—such as sericulture and animal husbandry—more appealing and economically viable for the younger generation. As a labor-intensive, rural-based agro-industry, sericulture offers vast employment potential and helps prevent migration from villages to cities. Its strong integration of on-farm and off-farm activities has earned it recognition as a key driver for rural socio-economic development in India's largely agrarian economy. Therefore, engaging youth in agriculture and allied enterprises is essential to ensure the long-term sustainability of these sectors.

Keywords— Sericulture, Rural Youth, Enterprise, Opportunities, Empowerment.

I. INTRODUCTION

Youth are widely recognized as the driving force and foundational strength of any nation. India, with its predominantly young population, holds a unique demographic advantage. Young minds are known for their creativity, innovation, and ability to tackle seemingly impossible tasks. As the most dynamic and productive segment of society, youth play a central role in socio-economic progress. With the global population expected to reach 9 billion by 2050, youth will make up around 14% of that figure. This makes it imperative to engage their energy, maturity, and decision-making ability in meaningful development initiatives.

India's youth are highly diverse in terms of culture, religion, and socio-economic background. Such diversity demands targeted strategies to nurture their potential and address their specific needs. Youth also play a key role in conserving the nation's natural resources and ensuring sustainable development. Given that a large share of India's population still resides in rural areas, real national progress is closely tied to rural development. Currently, individuals aged 15 to 35 make up nearly one-third of the population, with approximately 80% of them living in rural regions. Research indicates that over 70% of India's poor also live in these rural areas, making poverty reduction a critical national priority. Thus, the future development of the country heavily depends on how effectively its youth are empowered and engaged.

1.1 Status of the Silk Industry:

Andhra Pradesh, located along India's southeastern coastline, comprises two key regions: Coastal Andhra and Rayalaseema. The state holds a prominent position in India's silk industry, being the second-largest producer of mulberry silk. It is especially renowned for producing high-quality, international-grade bivoltine silk. Sericulture is an integral part of the state's rural economy, offering significant employment opportunities and supporting traditional weaving centers such as Dharmavaram, Peddapuram, Mangalagiri, Rayadurg, and Proddatur.

The Department of Sericulture, headquartered in Guntur and led by the Commissioner of Sericulture, oversees the promotion and development of silk production in the state. The department's mission is to boost the production of high-quality bivoltine silk (Grade 2A and above), while also creating sustainable rural employment.

Sericulture, as a labor-intensive and agro-based industry, has proven to be effective in preventing rural-to-urban migration. Its combination of on-farm and off-farm activities offers vast employment opportunities and has caught the attention of policymakers. As such, it has been identified as a strategic sector for rural socio-economic development in India's agrarian economy. Involving youth in this sector is crucial to both ensuring their livelihoods and achieving long-term sustainability in agriculture and allied enterprises.

1.2 The Need for Youth Engagement:

India is home to a large number of educated yet untrained and under-skilled rural youth. While many of them are socially aware and eager to contribute to their communities, they lack access to the practical skills and opportunities necessary for sustainable livelihoods. Directed and structured engagement of youth energy is essential for healthy rural development.

Uncertainties of traditional agriculture—due to factors such as erratic monsoons and volatile markets—there is a pressing need for governments to initiate youth-centric programs that promote scientific and sustainable farming practices. Agriculture and its allied sectors must be made intellectually stimulating and financially rewarding to attract and retain the interest of young people.

To this end, establishing agri-business centers, agri-clinics, and farm schools is vital. These institutions can serve as platforms for hands-on training, farmer-to-farmer learning, and knowledge sharing. Furthermore, emphasis must be placed on value addition to primary agricultural products to enhance income and improve livelihood sustainability.

II. OPPORTUNITIES IN SERICULTURE – REGULAR INCOME WITH MINIMUM GESTATION PERIOD

Sericulture presents a promising opportunity for rural development by ensuring a steady source of income with a relatively short gestation period. With domestic demand for silk consistently rising-and projections indicating this trend will continue over the next two decades-India is rapidly emerging as the world's largest consumer of silk. This growing demand opens up vast prospects for both horizontal (area-wise) and vertical (value-wise) expansion within the sericulture sector to meet the increasing needs of domestic and international markets.

To harness this potential, policymakers and industry stakeholders must take the initiative to introduce sericulture into new and unexplored regions. In this context, engaging youth in agriculture and allied sectors, including sericulture, becomes crucial. Youth are typically more open to adopting and implementing new technologies, which can accelerate growth and innovation in agriculture-based enterprises.

The Government of India continues to provide comprehensive support to Andhra Pradesh to enhance sericulture development across all domains. The focus is on maximizing benefits from existing capacities while also building new infrastructure. Key initiatives include the establishment of common facility centers for farm mechanization, silkworm seed production, reeling, spinning, and weaving units. These interventions aim to position Andhra Pradesh as the future "Silk Hub of India," generating rural self-employment, preserving traditional practices, and aligning with the vision of "Make in India" in an eco-friendly manner.

A major step in this direction has been the Silk Samagra program—a central sector scheme launched by the Central Silk Board. Implemented both directly and through state governments, this scheme supports various beneficiary-oriented interventions across mulberry, vanya, and post-cocoon sectors. It includes research-backed packages developed by scientific institutions and focuses on enhancing productivity, quality, and employment in rural areas. The major areas of intervention include:

- Expansion of host plant cultivation

- Strengthening silkworm seed infrastructure
- Development of farm and post-cocoon facilities
- Modernization of reeling and processing technologies
- Capacity building through training and enterprise development

TABLE 1
RAW SILK PRODUCTION IN INDIA

Particulars	Unit	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Mulberry plantation	ha	235001	239967	237578	242277	253182	263352
Mulberry raw silk production							
bivoltine	MT	6987	7009	6783	7941	8904	9675
Cross breeds	MT	18357	18230	17113	17877	18750	20217
Total	MT	**25344**	**25239**	**23896**	**25818**	**27654**	**29892**
Vanya silk production							
Tasar	MT	2981	3136	2689	1466	1318	1586
Eri	MT	6910	7204	6946	7364	7349	7183
Muga	MT	233	241	239	255	261	252
Total	**MT**	10124	10581	9874	9085	8928	9021
Total raw silk production	**MT**	**35468**	**35820**	**33770**	**34903**	**36582**	**38913**

Source: Central silk board, Bangalore

Although Andhra Pradesh has suitable climatic conditions for cultivating multiple silk varieties—mulberry, tasar, and eri—only mulberry and tasar are currently practiced on a commercial scale. With strategic implementation of developmental schemes, the focus has now shifted to boosting bivoltine silk production, which offers superior quality and higher market value.

Sericulture has emerged as a key employment generator in Andhra Pradesh, contributing to poverty reduction and inclusive growth. As a labor-intensive, rural agro-industry, it plays a crucial role in preventing rural-to-urban migration by offering viable livelihood options locally. The industry's structure—spanning from cultivation to weaving—makes it particularly suited for women and unemployed rural youth. Activities such as mulberry cultivation, cocoon rearing, reeling, twisting, and weaving can be integrated with household responsibilities, making sericulture both accessible and empowering.

Moreover, sericulture stands out for its low initial investment, short crop cycles, and continuous income potential. It directly supports the raw material needs of the silk weaving industry, ensuring a complete value chain from farm to fabric. These advantages have made sericulture a sustainable enterprise in only a few countries globally—India being one of the notable success stories.

Recognizing the sector's alignment with national development goals, including the Millennium Development Goals (MDGs), both the Central and State Governments have initiated several programs to promote sericulture as a tool for inclusive growth, rural employment, and socio-economic development.

III. STATUS OF SERICULTURE AND ENTREPRENEURIAL CONSTRAINTS IN ANDHRA PRADESH

Andhra Pradesh holds a distinct position in India's silk industry, producing three of the four major varieties of silk—mulberry, tasar, and eri. The state also boasts a rich weaving heritage, supported by over one lakh handlooms. Andhra Pradesh ranks first in unit productivity and second in total silk production after Karnataka. As a rural, agro-based industry, sericulture has now spread across almost all districts, contributing significantly to the rural economy (Seshagiri et al., 2003).

Over the past decade, many cotton weavers from regions like Rayadurg and Proddatur have shifted to silk weaving due to higher income potential. Districts like Anantapur lead in mulberry cultivation and cocoon production, with Rayalaseema, particularly Anantapur and Chittoor, emerging as sericulture hubs. The sector not only offers direct employment to farmers but also generates indirect jobs in reeling, twisting, dyeing, weaving, block printing, and manufacturing of sericulture tools and equipment (Seshagiri and Ganapathi Rao, 2002). The silk production trend in Andhra Pradesh is presented in table 2.

Sericulture is both a cultural legacy and a livelihood in Andhra Pradesh. However, despite its potential, entrepreneurs face several challenges that hinder sustainability:

- Unstable prices and irregular availability of quality silkworm seed and other inputs
- Inadequate technical support and extension services
- Low rainfall and declining groundwater levels, affecting mulberry cultivation
- Harsh environmental conditions (e.g., high temperatures and humidity in coastal regions)
- Shortage of skilled labour to sustain cocoon production and post-cocoon operations
- Limited financial support and coordination among related departments

To address these constraints, the Government of Andhra Pradesh provides financial and infrastructural support to entrepreneurs under various schemes (as detailed in Table 3).

TABLE 2
SILK PRODUCTION TRENDS IN ANDHRA PRADESH

S. No	Variety	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	Mulberry plantation (ha)	41915	44607	47363	50731	54971	58283
2	Mulberry raw silk (MT)						
	A) Bivoltine	1465	1446	1480	1624	1930	2308
	B) Cross breeds	6011	6511	6941	7207	7382	8181
3	**Total**	**7476**	**7957**	**8420**	**8832**	**9311**	**10489**
4	**Tasar**	5	4.5	1	2	1	2
5	**Grand total**	**7481**	**7961.5**	**8422**	**8834**	**9312**	**10492**

Source: department of sericulture, Andhra Pradesh.

TABLE 3
FINANCIAL ASSISTANCE PROVIDED BY THE GOVERNMENT FOR SERICULTURE FARMERS

S. No	Item/ Activity	Cost Rs.	Subsidy/Incentive Rs.
Mulberry propogation			
1	V1 saplings/acre	14,000	10,500
2	Tree mulberry plantation/acre	45,000	22,500
3	Soil enrichment (organic fertilizer like neem cake	10,000	5000
4	Micronutrients growth promoter	1500	750
5	Drip irrigation /one acre APMIP	1,50,000	1,35,000
Rearing shed, Veranda, Equipment's, Disinfectants, etc			
6	Model 1; rearing shed 50 x 20x 12-15 feet	2,75,000	82,500
7	Model 2; rearing shed 30x20x12-15 feet	1,75,000	87,500
8	Rearing shed for SC farmers	1,75,000	1,57,000
9	Rearing shed for ST farmers	2,00,000	1,80,000
10	Low cost shed including shoot stand	2,75,00	1,37,500
11	Construction of a veranda to a rearing shed	------	22,500
12	Rearing equipment's	70,000	35,000
13	Rearing equipment SC and ST farmers	70,000	63,000
14	Brush cutter farm mechanization	24,090	10,000
15	Secateurs	1,400	700
16	Disinfectants	5,000	3,750
17	Establishment of chawki rearing center and equipment's		4,20,000
18	Incentive on chawki silkworms/ BV/100Dfls	----	750
19	Plastic mountages	20,720	19,330
20	Plastic trays	6000	4,500
21	Production incentive for CB cocoons per Kg		10(20)
22	Production incentive for BV cocoons per Kg		50

Source: Department of sericulture Andhra Pradesh

IV. CHALLENGES FACED BY YOUTH IN SERICULTURE

Despite its potential to offer income and stability, youth involvement in sericulture and allied enterprises remains limited due to multiple structural and social challenges:

4.1 Limited Access to Skills and Information:

Youth in rural areas often lack access to quality education, agricultural training, and technology. Knowledge transfer traditionally occurs within families, but modern sericulture demands up-to-date information on markets, finance, water management, processing, and packaging—areas where youth are underserved.

4.2 Restricted Access to Land:

Increasing population pressure and land fragmentation have reduced the availability of agricultural land, making farming a non-viable option for many youth. Land not only provides food security but also supports rural employment and links urban markets through agri-produce.

4.3 Inadequate Financial Services:

Youth in agriculture often struggle to access affordable loans. While large industrialists secure loans easily, farmers face high interest rates, strict conditions, and crop risks. In cases of default or failure, they face severe consequences unlike their urban counterparts. Financial institutions must ensure affordable and inclusive lending to young entrepreneurs.

4.4 Barriers to Green Jobs:

There is untapped potential for green jobs that support sustainability and poverty reduction. However, youth lack technical skills, and even those with agricultural degrees often prefer salaried employment over farming. Investment in vocational training and enterprise development is crucial to change this mindset and empower youth toward self-employment.

4.5 Poor Market Access:

Limited access to input and output markets forces youth to rely on middlemen, reducing their earnings. Developing robust market linkages, cooperatives, and farmer-producer organizations (FPOs) is necessary to ensure fair pricing and transparency.

4.6 Minimal Role in Policy-making:

Youth are often excluded from decision-making processes. Policies are mostly designed top-down and may not reflect grassroots realities. Token participation, poor implementation, and bureaucratic hurdles reduce the effectiveness of youth-centric schemes. Empowering youth to participate in policy dialogues and feedback mechanisms can improve the relevance and impact of government programs.

V. EMPLOYMENT POTENTIAL OF SERICULTURE WITH LOW INVESTMENT

Sericulture offers significant employment potential even with minimal initial investment, making it an ideal enterprise for rural youth and women. Key features that make sericulture a powerful tool for inclusive development include:

- Short gestation period and multiple crop cycles per year
- Continuous income through integrated activities (mulberry farming, cocoon rearing, reeling, twisting, weaving)
- Low capital requirement and suitability for small landholdings
- High employment per unit area compared to other crops
- Compatibility with household-level work, especially beneficial for women
- Vital contribution to the raw material supply chain for the silk weaving industry
- Strong potential to reduce rural-to-urban migration

Globally, sericulture has struggled to sustain in many countries. However, India stands out as a success story, largely due to strong government support, traditional skillsets, and rural labor availability.

With alignment to sustainable development and poverty alleviation goals, the Government of India and State Governments continue to implement several schemes that promote youth involvement, infrastructure creation, and enterprise development

in the sericulture sector. These efforts make sericulture a viable pathway for rural economic transformation and youth empowerment.

VI. EMPLOYMENT AND ECONOMIC POTENTIAL OF SERICULTURE

Sericulture is a highly labor-intensive industry, creating approximately 11 person-days of employment for every kilogram of raw silk produced through both on-farm and off-farm activities. This employment potential, particularly in rural areas, surpasses that of many other industries, making sericulture a valuable instrument for rural development. The practice effectively contributes to addressing unemployment and poverty, with the highest labor force participation rate compared to other rural livelihoods.

Mulberry sericulture involves two major phases: cultivation of mulberry for leaf production and rearing of silkworms for cocoon output. Mulberry plantations begin yielding within six months and can remain productive for 15–16 years with minimal maintenance. Compared to other crops, which typically require several months to harvest, mulberry leaves can be harvested every 22–28 days. With proper management and modern techniques, farmers can earn more than ₹1,00,000 per acre annually, making sericulture a highly profitable agricultural venture that promotes youth employment and economic empowerment.

VII. TECHNOLOGICAL ADVANCEMENTS AND EXPANSION

The introduction of new techniques in mulberry farming, silkworm breeding, and improved hybrid seeds has significantly transformed the silk industry. These innovations are designed to be cost-effective and suited for small-scale rural farmers. Simple to adopt and highly rewarding, these technologies are encouraging farmers across multiple districts to take up sericulture as a primary occupation. The spread of sericulture is helping rural communities achieve economic stability and move away from traditional subsistence farming.

Sericulture has evolved from a supplementary rural activity to a leading agricultural business that offers better returns than many conventional cash crops. Due to its inclusive and development-oriented nature, sericulture continues to gain importance in rural development policies. Additionally, it supports equitable income distribution, productive use of marginal land, and has high potential for exports.

TABLE 4
SERICULTURE ECONOMICS ONE ACER PLANTATION UNDER IRRIGATED CONDITIONS

S.No	Particulars	Rate (Rs)	Amount (Rs)
A. EXPENDITURE			
1	Cost of leaf production for 28MT of leaf per kg	R.s 2.28	65000
2	Cost of dfl's multi x bi 1250 dfls	R.s 500 per 100 dfl	6250
3	250 man days for rearing @20 man days for 100 dfls per 1250dfls	250/-	62,500.00
4	Non-recurring expenditure approx.		60,000.00
5	Recurring expenditure approx.		7000
	Total expenditure		**2,00,750.00**
B. RETURN			
6	Returns by selling 750kgs cocoons @60kgs cocoons /100 dfls (1250 dfls /year)	500/-per kg	3,75,000.00
NET RETURN in Rs; (B-A)			**1,74,250.00**
ASSUMPTIONS			
Mulberry variety		V1	
Silkworm hybrid		Multi x Bi	
Avg leaf yield/ acre @70 MT /ha/yr		28 MT/acre	
No.of dfls brushed /acre/year		1250 dfls	
Avg cocoon yield / 100 dfls		60kg	
Avg rate of cocoon /kg		500	

VIII. EMPOWERING YOUTH THROUGH SERICULTURE

In developing countries, around 85% of the youth population depend on agriculture for income. However, many young people are leaving agriculture due to lack of income, poor social recognition, and limited growth opportunities. Challenges such as climate change, shrinking land availability, and low profitability further discourage rural youth. While policies in the past, like those supporting the Green Revolution, empowered youth through infrastructure and training, today's agriculture needs a similar transformation.

8.1 Strategies to Attract Rural Youth to Sericulture:

8.1.1 Market Analysis and Youth Identification:

Policymakers should begin with analyzing current market trends and identifying youth interested in agriculture. These individuals can be trained and supported in sericulture to ensure long-term engagement.

8.1.2 Capacity Building and Skill Development:

Sericulture is a skill-based sector. Youth training platforms and practical capacity-building programs are essential. Innovations such as shoot rearing, plastic mountages, drip irrigation, foggers, and sprinkler systems should be demonstrated and promoted. Institutions like APSSRDI, with IGNOU, are already offering certificate courses in sericulture, developing skilled manpower in this domain.

8.1.3 Professionalizing Sericulture:

Introducing professional practices among rural youth through mobile camps and training from universities will improve profitability and sustainability in sericulture. Youth feedback must be regularly collected to improve systems and ensure relevance.

8.1.4 Access to Finance and Markets:

Youth often face difficulty in securing loans due to lack of collateral. Easy access to low-interest loans and streamlined procedures are essential to support youth-led sericulture businesses. Additionally, timely information on market prices and weather will help farmers optimize production and returns.

8.1.5 Crop Insurance:

Silkworm rearing is sensitive and susceptible to diseases. Bringing sericulture under crop insurance will protect farmers from losses and encourage greater adoption.

8.1.6 R&D and Innovation Networks:

Research and innovation are key to modernizing sericulture. A platform like "Young Professionals for Sericulture Research (YPPSR)" should be developed to enable youth-led research, knowledge exchange, and policy input. Integration of ICT tools and modern agri-education systems will benefit young entrepreneurs.

8.1.7 Seri Poly Clinics:

One-stop service centers (Seri Poly Clinics) must be established to provide necessary inputs and services to farmers directly at their doorstep, ensuring ease and accessibility.

8.1.8 Chawkie Rearing Centres (CRCs):

Establishing CRCs by youth with small landholdings can boost bivoltine silk production. These centers are crucial for early-stage silkworm development and can enhance crop success.

8.1.9 Supporting Youth-led Enterprises:

Qualified youth should be hired as extension agents and supported in launching their ventures in rearing, reeling, weaving, garment making, and marketing. Value-added products and Silk Mark outlets can enhance their market presence. Recognizing successful youth in sericulture through awards and showcasing their stories can inspire others.

8.2 Youth as Catalysts for Sericulture Growth:

Young people bring enthusiasm, creativity, and a willingness to adopt new technologies. Their involvement is key to modernizing and expanding the Indian silk industry. Rural youth already contribute significantly to core sericulture activities like land preparation, mulberry maintenance, and silkworm feeding.

India currently contributes over 18% to global silk production and stands as the second-largest producer of mulberry silk. Despite this, productivity remains a challenge due to high production costs and limited use of technology. Engaging youth in sericulture can improve efficiency, reduce costs, and increase competitiveness in the global market.

In conclusion, empowering rural youth through targeted programs, education, financial access, and professional support can revitalize Indian sericulture. With proper guidance and opportunity, youth can transform sericulture into a thriving, modern, and inclusive industry.

IX. CONCLUSION

Most rural youth perceive limited prospects in agriculture and sericulture due to challenges such as unpredictable weather, lack of infrastructure, unstable income, and low profitability. However, despite these obstacles, today's youth remain hopeful, energetic, and determined to reshape the rural economy. They are increasingly interested in becoming agri-preneurs and seri-preneurs, actively engaging in all aspects of the value chain — from production and processing to marketing.

With growing awareness of climate change and environmental concerns, rural youth are emerging as responsible stewards of sustainable farming practices. Many continue to support their families through seasonal farming and maintain strong connections between rural and urban areas by temporarily migrating during the agricultural off-season. Their willingness to adopt modern technologies and ICT tools reflects a shift toward more informed, efficient, and market-oriented farming.

It is evident that youth are one of the most valuable assets of the nation. Unfortunately, their full potential often remains underutilized due to limited access to resources, training, credit, and land. As the current generation of farmers ages, engaging the youth in agriculture and allied sectors like sericulture is critical for ensuring future food security, economic resilience, and sustainable rural development.

By empowering rural youth, recognizing their role in innovation, and addressing their challenges through policy and institutional support, we can foster inclusive growth and transform traditional agriculture into a dynamic and rewarding enterprise.

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