

Empowering Rural Entrepreneurship: The Impact of Tasar Sericulture and Pradan in Jharkhand, India

Abstract: Tasar sericulture in India, particularly in states like Jharkhand, carries deep cultural significance and substantial potential for rural entrepreneurship and socio-economic development. As the world's second-largest producer of raw silk, India contributed 34,903 metric tons in 2021-22, with tasar silk constituting 4% of the country's total silk exports, producing 1,466 metric tons. This sector employs rural communities extensively, with 76.4% of Tasar silk originating in Jharkhand. NGOs like Pradan, in collaboration with government bodies such as the Central Silk Board, play a crucial role in empowering marginalized groups and fostering entrepreneurship. This extension is helpful to the scientific community, because this will help to easily assess the production data. This paper aims to highlight the significant impact of Tasar sericulture and the endeavours of the Pradan organization in empowering rural entrepreneurs in the state of Jharkhand, India. Despite challenges, the tasar silk industry showcases resilience and adaptability. With continued support and innovation this industry contributes to India's tradition of silk production and the uplifting of rural communities.

Keywords: Tasar Sericulture, Pradan, Private Grainage, Rural Entrepreneurship, Central SilkBoard

I. Introduction

The art of sericulture, the production of silk from silkworms, has been a timeless tradition in India, deeply rooted in its cultural heritage. The term "Sericulture" originates from the term "Su" (Si), meaning silk (Dewangan, 2013). Among the various forms of silk produced, Tasar silk holds a special place. While there is no documented origin story of Tasar Silk in India, its mention can be found in ancient Indian texts, including the epic *Ramayana*, where it is described as one of the gifts presented by Lord Rama to Sita. Tasar silk, derived from the Sanskrit word " *trasara* " meaning shuttle, has a storied history deeply intertwined with India's cultural fabric. The Tasar culture forms the basis of a forest-centric economy, forging a profound connection between the forest and its tribal inhabitants. Across Indian states like Jharkhand, Chhattisgarh, Orissa, Uttar Pradesh, Madhya Pradesh, West Bengal, Bihar, Maharashtra, and Andhra Pradesh, over 1.5 lakh tribal communities are involved in the practice of Tasar culture. Tussar silk, also known as tussah, tushar, tassar, tussore, tasar, tussur, and tussur, holds a significant place in the realm of silk. Known as "kosa silk" in Sanskrit, it is produced in various countries, including China, India, Japan, and Sri Lanka. Tussar silk is esteemed for its opulent texture and naturally occurring deep-gold hue. India, being the second-largest producer of tasar silk, ranks just behind China and contributes approximately 4% of the country's total silk export revenue (Amarnath et al., 2007).

India has the distinction of being the world's second-largest producer of raw silk, with an annual output of 34,903 MT in 2021-22. Notably, India produces all four varieties of silk,



Figure 1: Tasar silk cocoon



Figure 2: Tasar cocoon rearing



Figure 3: Tasar silksaree production (Times of India)

including Mulberry, Tasar, Muga, and Eri. Vanya Silk production, which includes Tasar silk, contributed about 9,085 MT during 2021-22, accounting for around 26% of the total silk production in India. Among the Vanya silks, Eri silk, with a production of 7,364 MT represented 21.10% of the total silk production, followed by Tasar 1466 MT (4.21%) and Muga 255 MT (0.73%) (Central Silk Board, 2022).

UNDER PEER REVIEW

Sericulture is predominantly practiced in rural areas, and it is an inclusive industry where even small-scale farmers can participate. The sericulture process encompasses the cultivation of silkworm food plants, the care and nurturing of silkworms to obtain cocoons, the reeling of cocoons to unwind the silk filament, and various post-cocoon procedures, including twisting, dyeing, weaving, printing, and finishing. The Central Silk Board (CSB) and State Departments of sericulture have contributed to the development of sericulture, particularly Vanya silk, in the nation, encompassing vast areas with diverse cultivation patterns. However, their function is limited to transferring and disseminating appropriate technologies and practices. Non-Governmental Organizations (NGOs) play a larger role in sericulture development in order to alleviate the financial burden on government agencies. The cultivation of Tasar silk is a labor-intensive endeavor. Pradan has been instrumental in the development of Tasar sericulture in the Tasar belt of Jharkhand, Bihar, West Bengal, and Chhattisgarh. Tribal members in Pradan have acquired entrepreneurial skills through diverse training and the introduction of DFSL (Disease-free lactation oreggs).

II. Literature Review

(Chanotra et al., 2019) Sericulture and the silk industry play a pivotal role in advancing rural economic development. They provide an avenue for investment with a minimal financial outlay, resulting in rapid income generation and offering abundant employment opportunities with promising returns. Importantly, this sector is inclusive, welcoming individuals from all walks of life, irrespective of gender or land ownership, and significantly benefits those in lower income brackets and socially disadvantaged segments of society.

(H.etal.,2022) The tasar sericulture industry, which produces tasar silk cocoon and commercial tasar seed, has the potential to employ family labour and provide livelihood opportunities for those dependent on tasar block plantations in forest communities. These models can be replicated elsewhere in tasar-dominated areas, imparting necessary skills and knowledge, thus providing economic opportunities for economically weaker sections by providing employment and income.

(Nandhini et al., 2020) Entrepreneurial behaviour in sericulture farming is markedly affected by factors such as age, experience, education, participation in relevant associations, and information sources. Enhancing entrepreneurial conduct among sericulture practitioners necessitates the implementation of training programs focused on technology upgrades, raising awareness about new technologies, and disseminating the latest rearing methods.

(Tripathi & Gurjar, 2016) The practice of sericulture and Kosa silk production in Chhattisgarh significantly impacts India's economic landscape. These products enjoy global recognition and contribute to India's GDP. The Indian government, through the Central Silk Board headquartered in Bangalore, has initiated efforts to promote these units. PRADAN plays a pivotal role in promoting Kosa silk and sericulture activities in Chhattisgarh, with a particular emphasis on marketing Kosa silk in international

markets. Additionally, sericulture is viewed as an entrepreneurial opportunity for unemployed professionals in Chhattisgarh.

UNDER PEER REVIEW

III. Objective of the Study

1. Explore the significance of Tasar Sericulture in the State of Jharkhand as it is majorly inhabited by tribals and forms an integral part of their daily life.
2. To assess and showcase the impact of the Pradan Organisation's initiatives and Interventions in empowering marginalised communities in collaboration with CSB (Central Silk Board) through entrepreneurship, and socio-economic development programs.

IV. Methodology

The research design for the study relies on a mixed-methods approach, including both qualitative and quantitative data.

- **Data Collection:** The data collection is based on the secondary form of data.

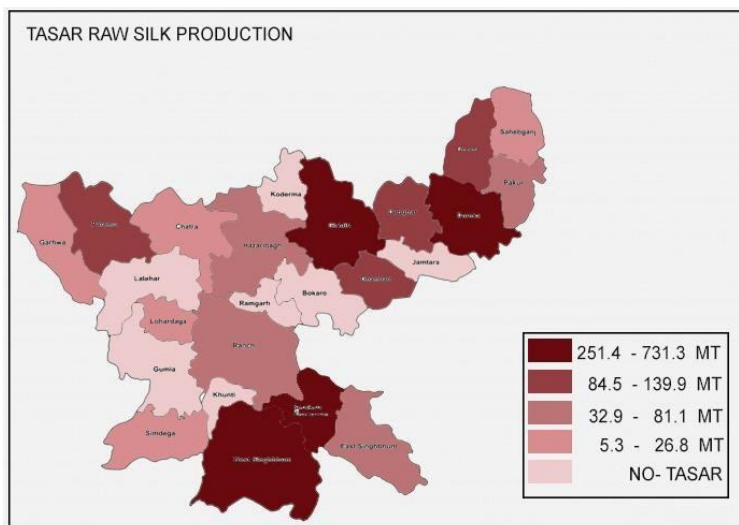
Qualitative data collection

- Source: Qualitative data gathered from sources like research papers, academic journals, Pradan's annual reports, and qualitative sections of government reports.
- Content analysis: It focuses on themes related to rural entrepreneurship development, the role of NGOs, challenges, success stories, and community perspectives.

Quantitative Data Collection:

- Source: Quantitative data gathered from reports such as Economic Survey of Jharkhand, Government Websites, and relevant publications that include statistical information.
- Data analysis: It deals with points relevant to rural entrepreneurship development, such as employment rates, income levels, and other economic factors.

V. Status and Significance of Tasar Sericulture in Jharkhand



map 1 Seri-States of India-A profile (2019)

Jharkhand is a leading tasar producing state in the country. Sericulture is a major employer in the state, especially in rural areas. 76.4 per cent of tasar silk is produced in Jharkhand. Millions of farmers, craftsmen, handloom and handicraft makers benefit from the sector's rural economy's backward links. Tasar sericulture being widely practiced by majority of tribals in the areas of East Singhbhum, West Singhbhum, Saraikela - Kharsawan, Godda, Deogarh, Dhanbad, Dumka, Sahibganj, Ranchi, Lohardaga, Hazaribagh and Giridih areas (seri states 2019). Tasar sericulture stands as a cottage industry deeply rooted in agroforestry and forestry, offering sustainable livelihood to numerous rural communities. It plays a pivotal role in redistributing wealth from urban to rural areas. The tasar sericulture industry is on the rise due to its capacity to generate employment opportunities for up to 2.5 lakh rural indigenous families across the country, offering high returns with relatively low investments to foster sustainable development. Tasar culture serves as the primary source of livelihood for numerous tribal communities in India (Gv et al., 2020).

Collaborating with the Department of Sericulture, the Central Silk Board (CSB) has undertaken several developmental programs to expand sericulture activities in general and to foster the economic development of tasar producers in particular. Within the state, there is a significant presence of tasar cultivators, totalling 1,50,453 individuals. Among them, 1,590 serve as nucleus seed rearers, 2,590 are Reshamdoots (silk messengers), 5,150 are seed rearers, and 1,41,123 engage as commercial rearers. The industry aligns well with the central government's initiatives such as "Make in India" and "Skill India," further enhancing its potential for growth. To further support this sector, the Jharkhand Silk, Textile, and Handicraft Development Corporation was established in 2006. JHARCRAFT's mission encompasses providing design support, training, entrepreneurship development, marketing assistance, and raw material support to local artisans, self-help groups, and non-governmental organizations engaged in similar activities (DEPARTMENT OF PLANNING AND DEVELOPMENT GOVERNMENT OF JHARKHAND, 2023)

Table.1 Sericulture Sector Achievement

Name of Scheme	Achievement for Year 2020-21
Production of Tasar Raw Silk (in Metric Tonne)	2184.45
Training for Improved Techniques to Sericulture Farmers (in numbers)	6250.00
1 Year Certificate Course Training (in numbers)	60
Preservation of Tasar Seed Cocoon (Lakh)	81.13
Basic Seed Rearing Seven Tasar Commercial Seed	207.42
Development of Mulberry Sericulture, Equipment and Plantation	16.5
Support for Connectivity under Krishak Sambad Suvidha Scheme (in Number)	11000

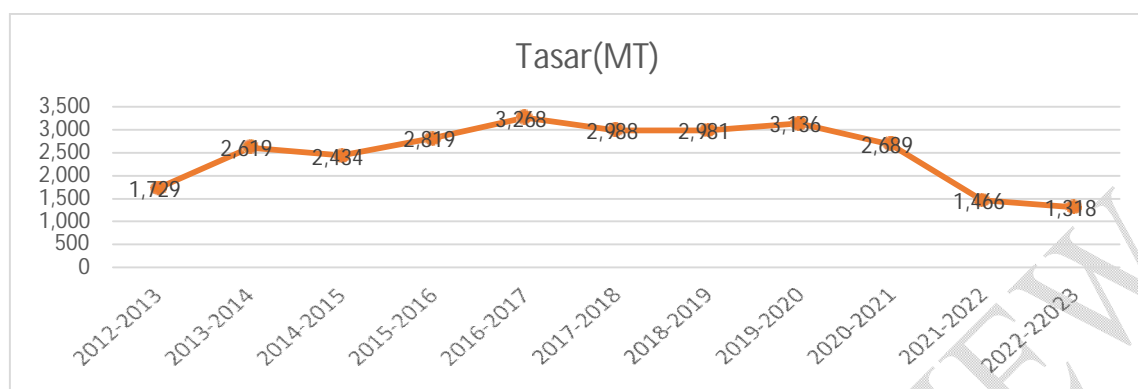
Source: Directorate of Handloom, Sericulture and Handicraft Department, GoJ

Production of cocoon by the Tasar silkworm insect (*Antheraea mylitta*) on the food plants of Arjuna (*Terminalia arjuna*), Asan (*Terminalia tomentosa*) and Sal or Sakhua (*Shorea robusta*) in the forests of Jharkhand state, mainly in the Kolhan and South Chotanagpur divisions, is a source of additional income and livelihood for the tribals and other local people. Arjun, Asan and Sal trees are considered most suitable for the production of Tasar silkworms and these trees are in abundance in Jharkhand (Big Buzz, 2022). Most of the silk is produced in Saraikela Kharsawan, West Singhbhum district of the state.

Table.2 Raw Silk Production in Jharkhand (MT)

YEARS	TASAR(MT)
2012-2013	1,729
2013-2014	2,619
2014-2015	2,434
2015-2016	2,819
2016-2017	3,268
2017-2018	2,988
2018-2019	2,981
2019-2020	3,136
2020-2021	2,689
2021-2022	1,466
2022-2023	1,318

Source: Central Silk Board, Bengaluru



Source: Compiled by the researcher according to the information provided by CSB, Bengaluru

Fig 4 : Raw Silk Production

The Covid pandemic impacted silk production in the past two years with the state producing 1,466 metric tonnes in 2021-2022 and 1,318 metric tonnes in 2022-2023.

VI. Pradan's Path in the World of Tasar Sericulture in Jharkhand

PRADAN, a non-profit organization, operates in various villages across 26 districts spanning seven states in India. Its primary mission is to uplift impoverished rural livelihoods by organizing communities, enhancing their skills, introducing income-generating methods, and facilitating their access to financial institutions, markets, and other economic services. In 1988, PRADAN initiated its Tasar program in the Santal Parganas district of Godda, later expanding its operations to Dumka, West Singhbhum, and Saraikela districts. Notably, PRADAN's endeavors from 2003 to 2008, as part of a Special SGSY Project, led to a notable growth rate in the Tasar sector. During this period, almost 7,000 families received comprehensive support in adopting advanced technologies and marketing strategies, which resulted in an increase in their average annual income from Rs. 12,000 to Rs. 15,000. Tasar sericulture serves as the traditional occupation for hundreds of thousands of tribal families residing in villages adjacent to the forests of central India.

PradanandTasarDevelopmentFoundation(TDF)

PRADAN played a pivotal role in establishing the Tasar Development Foundation (TDF) in 2013 to foster the expansion of the Tasar subsector. Presently, more than 11,000 households are actively engaged in Tasar sericulture. In the financial year 2018-19, the Ministry of Rural Development of India officially recognized the Tasar Development Foundation (TDF) as a non-governmental organization (NGO) under the DAY-NRLM, tasked with promoting Tasar sericulture in India. Approximately 22,000 households have direct associations with TDF, and through collaboration with the SRLMs of Jharkhand and Odisha, they have extended their support to an additional 4,700 households (Pradan Annual Report, 2019).

During the fiscal year 2021-22, income generated from silk worm rearing amounted to approximately Rs. 188 million (Pradan Annual Report 2021-22, 2022). To further boost rural livelihoods and expand the Tasar sericulture industry, the Central Silk Board and PRADAN have proposed multi-state initiatives aimed at reaching a substantial number of rural households.

PradanandMahilaShashaktikaranPariyojana(MKSP)

PRADAN is actively engaged in the Mahila Kisan Sasatikaran Pariyojana (MKSP), as approved by the Ministry of Rural Development (MoRD). This involvement has resulted in the direct coordination of six projects for tasar development across several states, including Bihar, Jharkhand, Odisha, West Bengal, Chattisgarh, Maharashtra, and Andhra Pradesh. The MKSP project for tasar development in Jharkhand is operational in eight districts (Godda, Pakur, Dumka, Saraikela, West Singhbhum, East Singhbhum, Giridih, and Deoghar) (MKSP Tasar Project-Jharkhand, 2018). The project's primary objective is to capitalize on the recent revival and growth of Tasar sericulture in Jharkhand through the implementation of a Special SGSY Project for Tasar Sericulture in collaboration with PRADAN and the Central Silk Board.

Details of the project areas follow:

Table 3 : Beneficiaries to be Covered

Sl.No.	Category	Number
1	Nursery Farmers	110
2	Nucleus Seed Rearer's	80
3	Basic Seed Rearer's	695
4	Commercial Rearer's	5,367
5	Private Graineurs	175
6	Indirect Beneficiaries	2,142

Source: <https://csb.gov.in/wp-content/uploads/2018/12/Jharkhand-livelihood.pdf>

Table 4 : Project Output During the Project Period

Sl.No.	Category	Numbers
1	TasarBasicSeeds(lakhDFLs)	2.25
2	TasarCommercialSeed(LakhDFLs)	21.39
3	TasarReelingCoccons(LakhNos.)	1,161.41

Source: <https://csb.gov.in/wp-content/uploads/2018/12/Jharkhand-livelihood.pdf>

VII. Constraints of Tasar Sericulture

Constraints in Tasar Sericulture are challenges that limit the growth and development of this vital industry. Pradan, in its effort to uplift marginalized communities and promote entrepreneurship in the sector, has identified several key constraints (Ray, 2010).

- The tasar sericulture sector faces a critical shortage of disease-free tasar moth eggs, often referred to as disease-free layings (DFLs). These eggs are the foundation of silkworm production, and the absence of a sufficient supply of healthy eggs can lead to a complete crop failure. Eggs obtained from diseased moths result in the emergence of diseased silkworms that do not survive to produce cocoons, causing significant losses.
- Conventional methods of rearing tasar silkworms prove to be financially unviable due to various factors such as the use of low-quality eggs, inadequate sanitation in rearing fields, and the detrimental impact of pests and predators. These issues contribute to low productivity in the tasar sericulture industry.
- The industry also faces challenges in establishing effective marketing connections. Technological stagnation is another pressing concern within the tasar sericulture sector, as existing technologies have become outdated compared to advancements in other technological fields.
- In the conventional value chain, the individuals involved in trading and lending money are considered the key entrepreneurial figures, while the producers mainly function as wage earners. With the exception of initiatives led by Pradan and MASUTA, the existing institutions in the value chain do not actively encourage entrepreneurial activities among tasar producers.

VIII. PRADAN's Innovative Approach for Addressing Challenges and Promoting Entrepreneurship Development in Jharkhand.

DFLs (Disease-Free Layings) of exceptional quality are the cornerstone of the tasar silk industry. The demand for high-quality commercial seed in the tasar sector far exceeds the production capacity of the state government, resulting in adverse effects on the overall unprocessed silk production. Furthermore, sericulture producers who have traditionally relied on tasar sericulture for employment may shift to other sectors, as indicated by the CSB and PRADAN collaboration in 2017. This can lead to breeders seeking alternative employment or resorting to exploiting forest resources, given the impracticality of the government producing such a vast quantity of DFLs. A novel approach, known as the 'Private Graineur' (PG), has been introduced to address this issue. This approach involves small entrepreneurs engaged in commercial seed production through a comprehensive backward and forward linkage strategy in potential clusters, as proposed by (Rathore et al. in 2018).

□ Private Grainage

In these villages, graineries have been established to prepare and distribute disease-free layings (DFLs). PRADAN plays a vital role in selecting and training grainage owners, offering entrepreneurial guidance, and facilitating the provision of financing for infrastructure and equipment (Seri -States of India - a Profile 2019, 2019).

These grainages are owned



Fig 5 Samples Examination through microscope to identify disease

and operated by individual entrepreneurs, predominantly young individuals. It has led to a significant transformation in tasar cocoon production. Grainage owners

inspect smears taken from female moths after egg-laying. Healthy eggs are treated with formalin and sold to tasar breeders as DFLs, while eggs from diseased moths are discarded. To date, PRADAN has promoted 360 grainages, collectively producing 7,500,000 DFLs annually, sufficient to support over 7,000 breeders. Each grainage serves 15 to 20 local farmers, offering technical guidance on farming in addition to the supply of DFLs. This initiative has also fostered an entrepreneurial spirit, promoting improved services and quality standards throughout the sector.

PRADAN further trains commercial rearers in implementing enhanced rearing practices, including methods like chawkie rearing, where worms are raised on small trees within nylon nets to protect them from environmental elements and predators.

□ Post Cocoon Sector

CTR & TI, Ranchi provides post-cocoon assistance to reelers/weavers and NGOs such as Pradan for the promotion and transmission of new cooking, reeling, and dyeing technologies. CTR & TI, Ranchi, provided culinary, reeling, and spinning instruction to all CFC-employed tribal women.

□ Marketing

In the state, there is no organized marketing system for various tasar products, particularly seed cocoons, commercial cocoons, and various types of silk yarn. To guarantee profitable prices for tasar cocoons and silk yarns and

to stop the exploitation of tasar cocoon producers by middlemen in the state of Jharkhand. The Central Silk Board (CSB) has set up Raw Material Bank (RMB) in Chiabasa, West Singhbhum, district, that helps regulate the market prices of tasar commodities. Additionally, the state government has established three cocoon banks in Chakulia, Ghatshila, and Kuchai to facilitate the marketing of tasar commodities (Seri States 2019). Furthermore, PRADAN, a state-based NGO, purchases tasar cocoons directly from producers at a profitable price. Throughout last few years the prevailing market price of tasar cocoons remained higher than the minimum support price fixed by Raw Material Bank (Rathore et al., 2019).

□ **PRADAN and Tasar Value Chain**

PRADAN has undertaken a range of initiatives within the tasar value chain, aimed at diminishing uncertainty, elevating productivity, and enabling disadvantaged individuals to retain a larger portion of the value added. Central elements of their strategies include:

1. Introducing a localized supply of disease-free layings for tasar moths at the village level.
2. Advocating for the implementation of scientifically sound rearing practices to reduce silk worm disease and mortality rates.
3. Establishing tasar host tree plantations on privately owned wastelands.
4. Fostering the production of tasar yarn by women within marginalized and underprivileged communities.

□ **Innovative enterprise by Pradan**

Year	Number of Families Rearing Silk-worms	Number of DLFs Reared	Total Number of Cocoons Produced	Total Income Realized (Rs)	Rent paid for the Plants by the Families (Rs)	Average Net Income Per Family (Rs)
2012-2013	16	3,050	2,72,182	4,91,111	56,308	25,174
2013-2014	18	3,250	2,57,959	4,55,263	60,000	19,207
2014-2015	0	0	0	0		0

2015-2016	20	4,707	1,94,160	4,51,263	75,000	15,767	A
2016-2017	20	4869	2,92,140	6,47,090	75,000	24,824	

village that has experienced a transformation in the livelihoods of its residents due to tasarplantation is Sadalpur. Situated approximately 11 kilometers from the block headquarters of Saraiyaha in Dumka district, it lies along the route connecting Saraiyaha and Deoghar district in Jharkhand.

Table 5 : Transformation in the livelihoods of its residents due to tasarplantation

Source: https://www.pradan.net/wpcontent/uploads/2017/02/newsreach_mar_apr_2017_tasar_special_issue.pdf

Income increased over four years through tasar silk worms rearing

Remarkably, the village no longer experiences distress migration, with a significant portion of its youth actively involved in agricultural activities. They have been able to free their land from moneylender mortgages, construct homes, and acquire valuable assets like bullocks and pumpsets, facilitating year-round cultivation of crops like okra, spinach, and chili peppers. PRADAN has introduced an innovative element to the tasar sericulture value chain by promoting the cultivation of tasar and arjun plants on privately owned wastelands. In the Kolhan cluster of Jharkhand alone, 2,162 families are actively involved in commercial private grainage operations under the MKSP (Mission for Integrated Development of Horticulture) program, (CSB and PRADAN 2017).

In addition to seeds, various other aspects such as organic inputs, biofertilizers, farm implements, machinery, and chemicals represent potential areas for public-private venture (CENTRAL TASA RESEARCH AND TRAINING INSTITUTE, 2023) within the tasar sericulture sector. PRADAN, in partnership with CSB, has ignited a transformative journey in the tasar sericulture sector in Jharkhand. By empowering rural communities and nurturing entrepreneurship.

IX. Pradan's Transformative Impact in Jharkhand

Pradan's intervention in Jharkhand has had a profound impact on the income generation, employment creation, and community empowerment. Here are some key highlights:

Income Generation and Employment Creation

Pradan has organized women in Jharkhand into self-help organizations, empowering them to generate sustainable incomes by participating in activities including poultry farming, irrigation, and tasar silk manufacture.

The "Livelihood-Arjuna" project, funded by Pradan, has a duration of twenty years, commencing in April 2020. During this period, a total of 3000 hectares (ha) of land will be cultivated, benefiting 4000 impoverished rural people residing in the districts of Godda, Dumka, and West Singhbhum in Jharkhand, as well as the Purulia district in West Bengal. The major asset is a 3,000-hectare plantation of Tasar silk, together with a 3,600-hectare forest area where income generation activities are being planned (Admin, 2021)

. When the production reaches its maximum capacity, the anticipated annual figures are:

The Pradan tasar silk production and value chain development project is anticipated to create a significant number of jobs, benefiting 1,200 households engaged in silkworm raising.

A total of 45 million cocoons will be transformed into 50 metric tonnes (MT) of raw silk.

A total of 1,500 yarn producers will operate throughout the year to transform 50 metric tons of raw silk into an equivalent amount of silk yarn (225 million in value terms) using the processes of reeling and spinning.

50 metric tons of silk yarn is transformed into 600,000 meters of silk fabric (Rs 300 million in value terms). This initiative will create job opportunities for artisans working in the handloom industry. In summary, the project will generate and safeguard a total of 5,656 employment opportunities in rural areas. (“Tasar Sericulture as Avenue of Sustainable Livelihood,” 2022)

Pradan's collaborations with financial institutions and government initiatives like as NRLM and MGNREGS have effectively generated supplementary job prospects for rural populations.

Community Empowerment

Pradan has established self-help organizations and community institutions for women at the village, block, and district levels, enabling them to gain control over their own lives.

Pradan has established a network of Community Resource Persons (CRPs) and Krishi Sakhis who act as grassroots leaders, sharing knowledge and providing support to other community members. (Paranjpe, 2023)

Pradan’s Unique contribution in the field of Tasar sericulture for rural communities

Reviving Tasar Sericulture in Jharkhand

Pradan has been involved in tasar sericulture in Jharkhand for over three decades, with the objective of creating sustainable livelihoods for marginalized communities. The initiative started in the Godda district of Jharkhand and expanded to other parts of the state and adjoining districts of Bihar, Chhattisgarh, West Bengal and Odisha. Pradan has systematically worked through the entire tasar silk value chain , raising host tree plantations, strengthening the seed sector, and promoting improved practices around silkworm rearing and yarn production.

Pradan revitalized the traditional tasar silk value chain in Jharkhand, which was experiencing a substantial decline. To involve tribal populations, they established silkworm breeding plantations in places next to forests. Pradan methodically transformed the tasar silk value chain by actively involving the community, implementing technical solutions, and assuring long-term commercial sustainability.

Scaling Up and Partnership

The silk initiative initiated by Pradan has been expanded to cover various districts in Jharkhand and Bihar, thanks to financial support from UNDP and technical assistance from the Central Silk Board. (“Tasar Silk Value Chain Development Framework for India’s Sustainable Agriculture Initiatives,” 2022)

Pradan's collaborations with financial institutions and government initiatives such as NRLM have effectively generated supplementary job prospects for rural people in tasar silk production and other means of living.

X. Success Stories

To illustrate the transformative impact of Pradan's initiatives, this study also includes two success stories.

- Piyush Ranjan Tudu, a 22 year old individual hailing from the Santhal Community in Dodhajhal Village within the Shikaripara division of Dumka District, Jharkhand, has achieved significant success as an entrepreneur. He generates an annual income exceeding Rs 20,000 by producing and selling Tasar DFLs (Disease-Free Laying) to fellow silkworm rearers in his community. In 2003, Piyush took the initiative to establish a grainage, which has remarkably lifted his family out of poverty. To enhance his skills and knowledge in grainage operations, Piyush participated in a 10-day training program led by experts from the Central Silk Board (CSB) in the neighbouring Kathikunda block. Following this training, PRADAN (Professional Assistance for Development Action) extended its support to help Piyush establish his own grainage and ensured a consistent supply of high-quality tasar silkworm eggs to farmers in Dodhajhal and nearby villages. Since 2004, Piyush has seen a steady increase in his income, progressing from Rs 15,000 to Rs 18,000. In the current year, he anticipates earning around Rs 20,000 by dedicating 60 to 90 days to this endeavor.
- Mohan Singh Soy, a Munda silkworm farmer residing in Kolhanregadih village in the Saraikela district of Jharkhand, shares his transformation: "There was a time when I could barely provide for my family for four months through land cultivation alone." However, today, Mohan Singh has achieved prosperity, thanks to his ability to cultivate two crops per year with the help of an irrigation pump. He is now looking forward to expanding into vegetable farming during the Rabi season. Despite considering abandoning their traditional tasar occupation due to low and uncertain returns, Mohan Singh's family has been revitalized by PRADAN's support, with tasar income once again serving as their primary source of sustenance.

XI. Conclusion & Suggestions

Tasar sericulture in India, deeply ingrained in the country's historical and cultural fabric, offers not only a source of economic sustenance but also a ray of hope for rural entrepreneurship and socio-economic development, particularly in tribal communities. States like Jharkhand, Chhattisgarh, and Orissa have witnessed the incredible potential of tasar silk, a unique and prized resource deeply intertwined with the lives of their people. **PRADAN's innovative approaches to tasar sericulture have significantly impacted rural communities in Jharkhand. By emphasizing the "Private Graineur (PG) model", PRADAN has transformed the landscape of the tasar silk industry, effectively meeting the high demand for Disease-Free layings (DFLs) through community-driven communities.** The remarkable journeys of individuals like Piyush Ranjan Tudu and Mohan Singh Soyexemplify the transformative impact of tasar sericulture, not only improving their own economic status but also advancing the tasar silk industry in their regions. Collaboration among NGOs, government agencies, and local communities has led to a robust value chain for tasar sericulture, boosting income levels, creating job opportunities, and alleviating distress migration. Despite challenges like the Covid-19 pandemic, the industry has shown resilience, representing empowerment, entrepreneurship, and sustainable development. Recognizing the contributions of organizations like Pradan and the Central Silk Board is crucial for nurturing the tasar silk sector. Key recommendations include ensuring a consistent supply of high-quality inputs, expanding rural entrepreneurship programs, embracing technology, establishing structured marketing systems, and promoting sustainable practices.

Various varieties of tasar silk, such as Ghucha and Katia yarns, which are high in demand for home furnishings and dress materials, creating livelihood opportunities for the local population, particularly the underprivileged in Jharkhand. Tasar culture not only provides livelihoods for tribal communities but also supports economic development, including women's empowerment. The state's efforts, supported by central agencies, have resulted in increased tasar raw silk production and cocoon productivity, benefiting a large number of sericulture practicing families. Although geographical distribution in remote forest areas remains a challenge, the growing global and domestic demand for tasar silk has encouraged systematic promotion of tasar culture through various developmental programs.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

References

1. Amarnath, A., Sathyanarayan, K., & Khanna, A. (2007). *Tasar silkworm seed production in the private sector under special SGSY projects in Bihar and Jharkhand: A breakthrough*. Retrieved from https://www.bacsa-silk.org/user_pic/Sbornik.pdf#page=204
2. Amarnath, Sathyanarayan, & Khanna. (2007). *Tasar Silkworm Seed Production in Private Sector under Special SGSY Projects in Bihar and Jharkhand- A Breakthrough*. In https://www.bacsa-silk.org/user_pic/Sbornik.pdf#page=204 www.bacsa-silk.org .
3. Big Buzz. (2022, August 7). *How Jharkhand's tasar silk spinning is trending globally*. <https://www.bizbuzz.news/economy/how-jharkhand-s-tasar-silk-spinning-is-trending-globally-1158030?InfiniteScroll=1>.
4. CENTRAL TASAR RESEARCH AND TRAINING INSTITUTE. (2023). *TASAR RAW SILK PRODUCTION STATISTICS*. Retrieved October 13, 2023, from <https://csb.gov.in/wp-content/uploads/2023/07/RawSilkProductionStatistics2022-23.pdf>
5. Central Silk Board. (2022, October 1). *FUNCTIONING OF CENTRAL SILK BOARD PERFORMANCE OF INDIA IN SILK INDUSTRY (Ministry of Textiles, Govt. of India)*. Retrieved October 13, 2023, from <https://csb.gov.in/wp-content/uploads/2022/11/NoteOnSeriCSB-2022-23-2nd-Qtr-English.pdf>
6. Central Silk Board & Pradhan. (2017). *Tasar value chain analysis: Jharkhand*.
7. CSB, Pradhan. *Tasar Value Chain Analysis Jharkhand*. Central Silk Board & Pradhan, 2017.
8. Chanotra, B., & Bali, A. (2019). *Sericulture: An opportunity for the upliftment of rural livelihood*. *Journal of Entomology and Zoology*, 7(6), 1–6. <https://www.entomologyjournal.com/archives/2019/vol7issue6/PartS/7-4-159-562.pdf>
9. Chanotra, Bali, & Bali. (2019). *Sericulture: An opportunity for the upliftment of rural livelihood*. *Journal of Entomology and Zoology*, 7(6). <https://www.entomologyjournal.com/archives/2019/vol7issue6/PartS/7-4-159-562.pdf>
10. DEPARTMENT OF PLANNING AND DEVELOPMENT GOVERNMENT OF JHARKHAND. (2023). *JHARKHAND ECONOMIC SURVEY 2022-2023*. Retrieved October 13, 2023 from https://finance.jharkhand.gov.in/pdf/Budget_2023_24/jharkhand_economic_survey_2022-23.pdf
11. Dewangan. (2013, April 1). *LIVELIHOOD OPPORTUNITIES THROUGH SERICULTURE: A MODEL OF GHARGHODA TRIBAL BLOCK, RAIGARH DIST.* *American Journal of Environmental Sciences*, 9(4), 343–347. <https://doi.org/10.3844/ajessp.2013.343.347>

12. Gv,V.,Nadaf,H.,Rb,S.,&Rathore,M.S.(2020,January1).*Tasarfor Tribes:Awayoflife*.ResearchGate.https://www.researchgate.net/publication/343322203_Tasar_for_Tribes_A_way_of_life
13. H.,J.,BalajiChowdary,N.,&Sathyanarayana,K.(2022,November15).TASARSERICULTURE AS A SOURCE OF INCOME AND EMPLOYMENT – AN ECONOMICANALYSIS.*PLANTARCHIVES*,22(Spl.Issue(VSOG)),75–82.
<https://doi.org/10.51470/plantarchives.2022.v22.specialissue.016>
14. Central Silk Board. (2018). *MKSP Tasar Project- Jharkhand*. <https://csb.gov.in/wp-content/uploads/2018/12/Jharkhand-livelihood.pdf>
15. Nandhini, S., Rohini, A., Murugananthi, D., & Anandhi, V. (2020, September 16).Entrepreneurial Behavior of Sericulture Farmers in Tamil Nadu. *Current Journal of AppliedScienceandTechnology*, 12–20.<https://doi.org/10.9734/cjast/2020/v39i2830934>
16. Pradan. (2019). *Annual report 2019*. <https://www.pradan.net/wp-content/uploads/2019/08/Pradan-Annual-Report-2019.pdf>
17. Pradan. (2022). *Annual report 2021-22*. https://www.pradan.net/wp-content/uploads/2022/09/Pradan-Annual-Report-09_09_22-1.pdf
18. Pradan. (2021, August 21). *Livelihoods-Arjuna*. Retrieved from <https://www.pradan.net/livelihoods-arjuna/>
19. Paranjpe, S. (2023, November 23). *Field Notes from Lohardaga: How a Grassroots Organisation in Jharkhand Shares Knowledge*. WELL LABS. Retrieved July 14, 2024, from <https://welllabs.org/knowledge-sharing-pradan-jharkhand-grassroots-ngo/>
20. Rathore, M. S., Chandrashekharaiyah, S., & Sinha, M. K. (2019). Linkage of rearers for production of commercial DFLs in tropical tasar silkworm, *Antheraea mylitta* D. *Journal of Entomology and Zoology Studies*, 7(6), 2349-6800.
21. Rathore, Chandrashekharaiyah, & Sinha. (2019, October 21). Linkage of rearers for productionof commercial DFLs in tropical tasar silkworm, *Antheraea mylitta* D. *Journal of EntomologyandZoologyStudies*, 7(6)(2349–6800).
22. Ray, M. (2010). Livelihoods through tasar sericulture: Issues before small producers. Retrieved from <https://www.pradan.net/sampark/wp-content/uploads/2019/08/Livelihoods-through-Tasar-Sericulture-Issues-before-Small-Producers-By-Madhabananda-Ray.pdf>
23. Ray. (2010). Livelihoods Through Tasar Sericulture Issues Before Small Producers .
In<https://www.pradan.net/sampark/wp-content/uploads/2019/08/Livelihoods-through-Tasar-Sericulture-Issues-before-Small-Producers-By-Madhabananda-Ray.pdf>.
24. Seri - States of India - A Profile 2019. (2019). Retrieved from <https://csb.gov.in/wp-content/uploads/2019/02/Seri-States-Profiles-2019.pdf>
25. Seri -States of India - A Profile 2019. (2019). In <https://csb.gov.in/wp-content/uploads/2019/02/Seri-States-Profiles-2019.pdf>.

26. Tripathi, S., & Gurjar, S. (2016). Impact study of sericulture and production of kosa silk on the economic map of Chhattisgarh: A comprehensive literature survey. *Indian Journal of Management Science*, 6(1).

26. Tripathi,&Gurjar.(2016).IMPACTSTUDYOF SERICULTUREANDPRODUCTIONOFKOSASILKONEC
ONOMICMAPOFCHHATTISGARH:ACOMPREHENSIVELITERATURESURVEY.*INDIANJOURNAL
OFMANAGEMENTSCIENCE(IJMS)*,VI(

27. **Tasar Silk Value Chain Development Framework for India's Sustainable Agriculture Initiatives. (2022). In**
<https://www.ceew.in/sustainable-agriculture-initiatives/tasar-silk-value-chain-development-case-study>.

28. **Tasar Sericulture as Avenue of Sustainable Livelihood. (2022, July).**
https://devalt.org/newsletter/jul22/of_1.htm.

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