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FOREST BASED ACTIVITY AND CONTRIBUTION OF WOMEN IN ENRICHING TASAR COCOON PRODUCTION IN CHHATTISGARH STATE – A CRITICAL ANALYSIS

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ABSTRACT Livelihood opportunities in Indian subcontinent for tribal and village population are very limited. NTFPs offers some amount of support for various tribal communities who thrive on procurement of non-timber forest products and marketing them to fulfill their basic necessities of food and clothing. With environment lobbies becoming stronger and governments yielding to their influences by making stricter forest laws thus are restricting the tribal population to explore other means for their survival. Tasar culture is one of the most suitable and highly specialized occupations which have been practiced in tribal and inaccessible area of Chhattisgarh with larger tribal population by producing tasar cocoons and marketing them. In the process, Chhattisgarh state has emerged as the second largest producer of Tasar silk or popularly known as Kosa Silk locally. The women populations engaged in or supporting the activities of tasar culture are of prime significance by contributing substantial labour force in various activities of tasar culture. Women constitute about 33% of manual work force in various activities of production of cocoons and subsequent chain of reeling and spinning activities. The present paper deals with the various aspects of women empowerment engaged in tasarculture activities have been enumerated and subsequent contribution to rural economy have been assessed. The state of chhattisgarh is formed few decades ago has made significant strides in production of tasar silk. Women's contribution in achieving milestones is highlighted.

KEYWORDS : Chhattisgarh state, tasarculture, women empowerment, tasar silk, Cocoon production.

INTRODUCTION

1.1 About the state of Chhattisgarh:

Rural economy and employment in rural Indian context has been predominantly agriculture based. The Chhattisgarh state which was created in the year 1 November 2000 carved out of the state of Madhya Pradesh state has an area of 1.35 lakh Sq.Kms. with a population of 2.34 crores as per 2000 census. The state is divided into 16 districts for administrative purposes. The state of Chhattisgarh is situated at a latitude of 21.2787° N, and 81.8661° E longitude. The typical climate of the state is tropical in nature with hot dry summers and cold dry winters. The state Physical Map is depicted in the physical map in Fig. 1.

Fig No.1. Physical Map of Chhattisgarh State. India.

1.2 Vital State Statistics:

I. State Population: (2011Census) : 25,545,198

1. Male : 12,832,895

2. Female: 12,712,303

Description	Rural	Urban	Total
1. Male	97,97,426	30,35,469	12,832,895
2.Female	98,10,535	29,01,768	12,712,303

1.3 Total Geographic Area: 137.90 lakh hactares.

1. Cultivable land : 46.77 lac.ha.

2. Forest land : 63.53 lakh,ha.

3. 43% of arable land is under cultivation.

Rural Indian economy by and large suffers due to rural poverty and unemployment. The complexity of poverty can be attributed to manifestation of multiple factors which are either intrinsic or otherwise to the society. Judicious resource management and appropriate technological interventions supported by the market driven friendly policy for agriculture and allied activities would to a large extent alleviate poverty. (***Dewnagan et al 2011***) opined that balancing the technological, policy and available natural resource could alleviate poverty. Similarly, ***(Gangopadhyay 2009)*** expressed that labor intensive agro-based activity like sericulture could play an important role in reducing migratory labour force to other areas of manual labour such as construction, industrial works etc. Environmental degradation and its impact on water cycle has become an impediment for sustained livelihoods in tribal belt and women who are dependent on forests are the most impacted. (Awais et.al 2009) expressed concern for sustainable livelihoods of women. Women constitute to the tune of 35% to the total work force engaged in agriculture and allied fields. Statistics indicate that 2000-2001 to 2013- 2014 has progressively increased participation of women in sericulture activities is a significant achievement as an attractive employment opportunity (Table 1.). (Gates,2001, Panda 2007, Singh,N 2006, Srinath 2008, Thamizoli 2001, Vijayalakshmi.V 2002) also reported that labour force to the tune of 50% in mulberry cultivation and 60% in silkworm rearing is constituted by women. Rama Lakshmi 2007, reported that about 35 – 40 lakh women are engaged in various activities of sericulture. There are many studies claiming that women even though participate actively in many areas of agricultural and non-agriculture activities, they are not part of decision making process (Barman 2001, Bose Ahmed & Hossain 2009, Joshi, 2000, Nathan & Kolkar 1997, Rehman & Routray 1998, Satyavathi Bharadwaj & Brhamanad 2010). However studies on women Sericulture as compared to agriculture has empowered women economically, socially and politically (Geetha & Indira 2010, ,2011, Goyal 2007, Pillai & Shanta 2011, Thomas, Muradian de Groot & de Ruijter 2010, Vasanthi 1992, Vijayanthi 2002).

Table 1: Year –wise Women Employed in Sericulture

S.No	Year	Employment (In Lakh Person)	No of Women (In Lakh Person)
1.	2000-2001	54.00	32.40
2	2001-2002	55.73	33.44
3	2002-2003	56.00	33.60
4	2003-2004	56.50	33.90
5	2004-2005	58.00	34.80
6	2005-2006	59.05	35.43
7	2006-2007	60.03	36.02
8	2007-2008	64.11	38.74
9	2012-2013	70.65	40.00
10	2013-2014	78.85	Not Available
11	2016-2017	80.51	Not Available

Source: Department of Sericulture Industry

Mulberry Sericulture in India is predominantly practiced in the states of Karnataka, Tamil Nadu, Andhra Pradesh, West Bengal and Jammu and Kashmir which is in common parlays is "Mulberry Sericulture". Four major types of sericulture i.e Mulberry, Muga, Tasar and Eri are practiced in the entire country.

However, Muga, Tasar and Eri sericulture are now nomenclatured as "Vanya Silks". The Vanya Sericulture is primarily forest based and specifically Tasar and Muga sericulture as the silkworms Antherea mylletta and Antherea assamensis are reared on *Terminalia arjuna, Terminalia tomentosa and Shorea robusta* trees, while Muga silkworm is reared on *Persea bombycina and Litsaea polyantha* which are forest trees. Fig 2.

Indicates various states of India and clusters where sericulture is traditionally practiced. The map indicates that the state of Chhattisgarh predominantly a tasarculture practicing state. In this paper a study was undertaken to assess and understand the relationship of tasar or Kosa with that of women folk in perpetuating the production over a long period of time.

METHODOLOGY

Study is based on review of Secondary data from departmental reports, Annual Reports and data collected through surveys using prescribed data collection sheets and questionnaires from different field units located in several parts of the state of Chhattisgarh, such as Ambikapur, Boirdadar, Paali, Bastar, Bilaspur and Janjgir – Champa districts. Annual Forest Assessment reports were also covered along with personal interaction with each adopted farmer groups of different regions.

RESULT & DISCUSSION

1.1. Tasarculture and Chhattisgarh state:

Chhattisgarh state is the second largest tasar silk or kosa silk producing state in the country. To understand the relationship of tasarculture, it is pertinent to know the states richness of forest cover and the supporting factors favourable for sustained growth of tasarculture. Table 2. shows the various categories of forest cover in different districts of state. Out of the total 27 districts of the states, 17 districts are with highly dense to open forests exists as per the assessment of 2011 of forest department.

Based on this data it suggests that tasarculture is practiced in all the districts of state as food plants are abundantly found in the state of Chhattisgarh. Districts which are predominantly tasar crop production such as Bastar, Bilaspur, Dantewada and Janjgir – Champa regions have established their own remarkable geographic identity by producing silk fabrics which are unique in their design and colours.

The employment generated in this chain of production cycle has contributed to economic wellbeing of families involved in the various activities of tasarculture. Since major area of state is under forest area, it is imperative that the land based activities have limitation of ownership and associated resources. Also, irrigation facilities being very limited, only two crops are grown particularly of paddy during rainy season. Therefore, it tasarculture which is forest based non-timber activity, forests, while being conserved, can support livelihoods of the native population of which many dependents members are women.

Table 2: District Wise Forest cover Assessment in Chhattisgarh State.

District	Geographical Area	2011 Assessment				
		Very Dense Forest	moderately Dense Forest	Open Forest	Total	Percentage of GA
Bastar	14974	1349	4333	2329	8011	53.50
Bilaspur	8270	338	1623	533	2494	30.16
Dantewada	17634	1082	6167	4079	11328	64.24
Durg	8549	44	521	202	767	8.97
Janjgir-champa	3852	4	26	125	155	4.02
Jashpur	5838	111	1485	568	2164	37.07
Kanker	6506	215	2044	835	3094	47.56
Kawardha	4223	70	1126	389	1585	37.53
Korba	6599	203	2306	840	3349	50.75
Mahasamund	4789	4	534	422	960	20.05
Raigarh	7086	126	1697	723	2546	35.93
Raipur & Dhamtari	16468	189	3837	1435	5461	33.16
Rajnandgaon	8068	29	1771	720	2520	31.23
Sarguja	15731	320	4836	1977	7133	45.34
Grand Total	**135191**	**4163**	**34911**	**16600**	**55674**	**41.18**

Fig 2: Silk Map of India depicting different sericulture growing areas and types of silks produced in India.

1.1: Tasarculture and Women Participation:

It becomes pertinent to understand the relationship of extent of forest cover, tribal population and women contributing in various activities of tasarculture and production of tasar silk fabrics.

Population census of Chhattisgarh state of 2011 shows that in the districts dominated by forest cover, large population of tribal women who are actively involved in tasar silkworm cocoon production and subsequent segments of reeling, weaving and spinning activities.

An assessment of men and women participation in different segments in each of the districts dominated by high forest cover and tribal population with that of women contributing to the overall production cycle has been given in Table 3.

Total number of women participating in the Tasarculture supply chain is estimated to be 11601 out of total work force engaged in Tasarculture (35621) or 32.56% is contributed by the women folk in the state.

Fig.3 depicts the various Tasarculture activities in which women are actively involved and contribute their household income to improve their economic condition.

The present study reveals that within SHGs scope for individual group member can exercise her right in decision making and hence expanding her acquired knowledge to better use for better crop yield and higher economic returns.

The women in Chhattisgarh being predominantly located in forest areas or nearer to forest areas has the liberty to be flexible in time schedules for monitoring and management of tasar silkworm rearing and processing unlike mulberry sericulture where it is more or less time bound and very systematically time schedules are drawn.

Therefore, women participants are participating in both tasar silkworm rearing and reeling using latest technology developed in both the rearing and reeling sector proactively and reaping the benefits of the same.

Table : 3 Women Involvement in various tasar sericulture activities information of beneficiaries of empowerment schemes of Government of India in the state of Chhattisgarh State.

Sl No.	District	Tasar cultivation			Tasar Reeling beneficiaries			Natural cocoons collections			Grand total of beneficiaries benefited from all scheme			
		Total beneficiaries	male	Female	Total beneficiaries	male	Female	Total beneficiaries	male	Female	Total beneficiaries	male	Female	% of Women Beneficiaries
1	**2**	3	4	5	6	7	8	9	10	11	12	13	14	**15**
1	Janjgir	1487	1007	480	0	0	0	982	542	440	2469	1549	920	37.26
2	Bilaspur	405	279	126	0	0	0	0	0	0	405	279	126	31.11
3	Mungeli	59	29	30	0	0	0	0	0	0	59	29	30	50.85
4	Korba	1027	804	223	121	40	81	568	412	156	1716	1256	460	26.81
5	Ambikapur	352	276	76	103	21	82	175	130	45	630	427	203	32.22
6	Surajpur	243	178	65	0	0	0	0	0	0	243	178	65	26.75
7	Balrampur	228	185	43	0	0	0	0	0	0	228	185	43	18.86
8	Koria	127	114	13	0	0	0	0	0	0	127	114	13	10.24
9	Raigarh	2283	1810	473	423	116	307	31	28	3	2737	1954	783	28.61
10	Jashpur	893	717	176	0	0	0	384	384	0	1277	1101	176	13.78
11	Raipur	42	14	28	0	0	0	60	45	15	102	59	43	42.16
12	Gariyaband	173	160	13	0	0	0	0	0	0	173	160	13	7.51
13	Balodabazar	16	14	2	0	0	0	170	170	0	186	184	2	1.08
14	Mahasamund	1044	694	350	0	0	0	460	380	80	1504	1074	430	28.59
15	Dhamtari	65	50	15	0	0	0	60	48	12	125	98	27	21.60
16	Rajnandgaon	57	38	19	0	0	0	0	0	0	57	38	19	33.33
17	Durg	0	0	0	0	0	0	0	0	0	0	0	0	0.00
18	Balod	0	0	0	0	0	0	0	0	0	0	0	0	0.00
19	Bemtara	9	7	2	0	0	0	0	0	0	9	7	2	22.22
20	Kanwardha	14	10	4	0	0	0	0	0	0	14	10	4	28.57
21	Jagdalpur	264	208	56	116	0	116	9000	6120	2880	9380	6328	3052	32.54
22	Narayanpur	50	36	14	9	9	0	1107	1015	92	1166	1060	106	9.09
23	Konthagaon	55	44	11	15	10	5	1649	1258	391	1719	1312	407	23.68
24	Dantewara	43	39	4	10	0	10	4280	2335	1945	4333	2374	1959	45.21
25	Sukma	5	5	0	0	0	0	5860	3640	2220	5865	3645	2220	37.85
26	Beejapur	176	123	53	0	0	0	0	0	0	176	123	53	30.11
27	Kanker	439	262	177	200	0	200	282	214	68	921	476	445	48.32
	Total	**9556**	**7103**	**2453**	**997**	**196**	**801**	**25068**	**16721**	**8347**	**35621**	**24020**	**11601**	

Source: Department of Sericulture Government of Chhattisgarh.

Fig.3: Women involvement in various activities of Tasar silk Production Activities in Chhattisgarh State.

There are many research studies involving women in sericulture and their gender differences and with no accessibility to decision making (Nathan and Kelkar 1997,Rahman and Routray 1998,Joshi 2000, Barman 2001, Bose et al.2009, Satyavathi, Bharadwaj and Brahmanand 2010). The research work carried out by Dewangan 2017, enumerated that various risk factors, displacement of livelihood and losses incurred in certain areas of study. Such studies concentrated on mulberry sericulture and not other activities of sericulture like tasarculture. The present study exclusively aims at tasarculture as an women empowering tool for sustainable livelihood occupation with any capital investment. The one and only investment involved is human labour of maintenance and monitoring crop for possible diseases and pest management with periodic seeking suggestions from Scientists for harvesting successful crop. Hence women involved in tasarculture needs to be updating their skills and taking control of various aspects of management periodically. However no study was attempted to empower women to decision making except for SHGs made in Andhra Pradesh state is one such effort. In Chhattisgarh with the recent intervention of government of India to open personal bank accounts has made it possible to women working together can have independent say in every aspect of work being undertaken collectively so as to achieve high economic returns which will be credited to their respective bank accounts through registered societies. The process is unique as the group members have their individual economic control, while deciding the quantum of DFLs to be reared per crop and other such vital issues are at their command. As given in Table 3; district-wise beneficiaries of only Tasarculture establishes that Districts with high forest cover such as Mungeli, Dantewada, Raipur, Kanker and Sukma were able to harvest higher tasar cocoons which fetch higher returns. The women beneficiaries were also significantly high.

2.3 Tasarculture and Women Empowerment:

Having realised the beneficial and economically viable employment opportunity, tribal women are increasingly participating in tasarculture activity unlike in other agriculture crops investment, crop monitoring,

irrigation, additional labour cost etc are absolutely is of no consequence. Also, the work place being in their vicinity women would prefer to monitor their crops easily. Since tasar silkworm also gets afflicted by many diseases and pests their management becomes utmost important. Knowledge sharing through various periodic trainings to women is imparted. One such program exclusively aimed at empowering women is Capacity Building Training Praograms (CBT), Skill Enhancement Training Programs and Technology Awareness Programs are conducted periodically to empower the women involved in tasarculture activities. Skill enhancement training program comprises of Microscopic Examination, Grinage Operations and Rearing Silkworm Activities. The details of trainings conducted for over four years are given in the Table 4.

Table 4: Empowering Women Tasarculture Farmers through Training Programs:

Year	Capacity Building Program	Skill Enhancement Program	Village Community Participatory Program.
2016 – 2017	481	1004	697
2017 - 2018	352	985	464
2018 - 2019	315	953	227
2019 - 2020	305	1039	-

Source: Annual reports of BTSSO, CSB, Bilaspur

The present study implies that in Chhattisgarh state being highly rich in natural resources that support native population with sustainable livelihoods based on tasarculture. The programs and projects taken up for scaling up tasar (kosa) silk production in the state, women empowerment through periodic technology intervention and training have made the women involved in silkworm rearing and silkworm egg production become more economically sound and financially independent. The training programs delivered highly skilled manpower in the region. Skill development along with enhanced scientific knowledge has elevated the working efficiency and decision making much more efficient in the state of Chhattisgarh. Also the lessons learnt from this study are that empowering women should not be a onetime intervention but should be refreshed often to update their technological knowhow and subsequent support system.

Fig1.Tasar Silkworm Disease Free Laying (Eggs) production

Fig 2. Women in Tasar Silkworm Rearing and cocoon production activity

3.Silk reeling

4.Silk weaving

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