



ORIGINAL ARTICLE

Participation of Tribal Women in Sericulture in Two Tribal Block of Raigarh District, Chhattisgarh, India

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ABSTRACT

Sericulture is recognized as a women friendly enterprise since it is easily acceptable to rural based women, where women involvement is about 53.45% of the total employment generated in silk industry. The study is based on personal interview of the sampled respondents following the structured interview schedule. The present article will mainly explore the participation of tribal women in sericulture. This consider the socioeconomic status of Indian Tribal women who are less educated, rural based and cannot move far away in search of jobs, one has to find out an enterprise which is appropriate and feasible. In light of these considerations, sericulture appears to be more suitable for women. This article will further discuss the Sericulture being a high employment potential agro-based cottage industry, provides congenial atmosphere for women employment. Series of activities involved in production of silk encompass both on-farm and non-farm activities. Women are mostly favored because of their industrious nature. It is noteworthy that silk was discovered, since then, women are taking active role in various activities in production chain of different types of silk, from silk to finished fabric. However, their work has not always been properly recognized or suitably rewarded. Sericulture is essentially a village based industry that provides employment to both skilled and unskilled labor, women and aged persons at homes at minimum risk. India continues to be the second largest producer of silk in the world and has 16.58% share in global raw silk production. Among the four varieties of silk produced as in 2013-14 the production increased up to 26480 MT and in 2016-17 it goes up to 30265 MT. The employment generation in the country is raised to 8.51 million persons in 2016-17 compared to 7.85 million persons in 2013-14. In Chhattisgarh Tasar and mulberry are reared on commercial scale. Tasar is really named as Kosa. Sericulture practiced by the tribal of traditional Districts of Baster, Raigarh, Bilaspur and Surguja. Sericulture with its unique features plays an important role in upgrading the socioeconomic conditions of the rural folk and with employment opportunities to the educated rural youth and women. The paper highlights the sericulture is a way for employment generation in Raigarh district, their utilization and needs as they act as a tool for socio-economic change for tribal women. The study concludes with some suggestions to improve the feasibility of sericulture in long term.

Key words: Women, Sericulture, employment, tribal, income

INTRODUCTION

India consisting of 16% of world's population, sustains only on 2.4 % of land resource (Behre, *et. al.* 2008). India is a nation with over 330 million poor people (Thampi, 2012). About 200 million poor people who live in 1.73 lakh fringe villages, forests are the only source for their livelihood (Nayak, *et. al.* 2012). India's current forest and tree cover is estimated to be 78.29 million hect. Constituting 23.81% of the geographical area of the country (ISFR, 2011). People in forested area rely on forest to maintain their well-being (Byron and Arnold 1999). Forest serves as a source to improve their income (Ruiz-Perez, *et. al.* 2004). Forest can help in poverty mitigation and avoidance by serving as source of subsistence, seasonal gap filters and safety nets (Sunderlin, *et. al.* 2005). Forest cover has declined by 367 sq. km. Compared to the forest cover in the preceding ISFR IN 2009. In India, two third of the total forest area is distributed in 188 tribal districts, where rural poverty is more than 50% (FSI 1997). The poverty headcount ratio (HCR) in India declined from 36% in 1993-94 to about 28.3% in 2004-05 (Mahendra Dev and Ravi, 2007). A Significant percentage of the country's underprivileged population happened to be living in its forested regions (Saha and guru, 2003). It has been estimated that more than 40% of the poor of the country are living in those forest fringe villages (MoEF, 2006). The forest fringe communities not just collect these forest products for their

own consumption but also for commercial sale, which fetch them some income (Bharath kumar, *et. al.* 2010; Sadashivappa, *et. al.* 2006; Mahapatra and Kant, 2005; Bahuguna, 2000). There are estimated 370 million indigenous people living in more than 70 countries worldwide (WHO, 2007). There are 258 well-recognized tribal communities, notified as scheduled tribes in India with more than 8% of the total population (Sinha, 2003). A widely pervasive reality in respect of tribal communities in India is that most of them are socially ignorant, economically weak, geographically isolated, politically indifferent, culturally rich, behaviorally simple, trustworthy and leading their life in the lap of nature (Rao, 2013). One of the main challenges that Indian government is facing after independence is the provision of improvement of their socioeconomic status (Kokate and Solunke, 2011). 84% of the India's tribal and ethnic minorities live in such areas, where natural, physical, social and human capitals are very low (Mehta and Shah 2003). About 70% of the population mainly on rain fed agriculture characterized by low productivity, UN-predictive weather and calamities, degraded soil with low fertility, UN-protective irrigation and degraded natural resources (Chakraborty, *et. al.* 2009). These factors aggravated the problems of poverty, migration, unemployment, under-employment, food insecurity and malnutrition for millions of tribal people in India. Forests have both, the potentials and limitations with regard to poverty alleviation capabilities (Angelsen and Wunder 2003). Women are mostly engaged in the unorganized sector (Mehta and Sethi, 1997). The continuous increase in prices has also pushed women to income generating activities within or outside the household to maintain an economically sound family. It is found that India is the home to 12.7 crore working women and 90% of them are working in the unorganized sector (Census 2001). In fact, women in general are found to bear double burden in the development process- one on the domestic front and other on the economic front (Gupta and Gupta 1987). It is found that women are engaged in various fields, the participation of women is mostly found in marginal and casual employment due to inadequacy skills, illiteracy, restricted mobility and lack of individual status (Chari, 1983). The socioeconomically discriminated women are facing various types of obstacles for empowerment (Sen, 2001). Tribal women face problems and challenges in getting a sustainable livelihood and a decent life due to the environmental degradation (Awais, *et. al.* 2009). Women are involved in most of the operations in agriculture, dairy, poultry, beekeeping, mushroom cultivation, fish culture, social forestry and sericulture (Bajwa, 1983; Prasad and Chandra, 1991).

The word "Sericulture" has been derived from the word "Su" (Si) which means silk. Sericulture, the art and science of growing silkworm, food plants, rearing silkworms and production of silk is basically an agro-industry and an economically rewarding enterprise consisting of several sets of activities and plays a predominant role in shaping the economic destiny of the rural people (Dewangan, *et. al.*, 2012). Sericulture is the rearing of silkworms for the productions of cocoons which forms the raw material for producing raw silk. Sericulture originated in China and the Chinese kept it secret for over 3000 years before it leaked to India, Korea and other nations in Asia and Europe (Krishnaswami, *et.al.* 1972; Ball, 2009; He, 2010). Sericulture is divided in two sectors namely farm and industry. The farm sector involves growing silkworm's food plants, rearing silkworm to produce cocoons and eggs. Reeling, twisting, dyeing, printing, finishing, knitting form the industry sector (Srivastav, *et. al.* 2005).

Sericulture, the production of silk worms and thus ultimately of silk fiber (Ganga and Chetty, 1991), has become a promising rural activity in India because of its minimum gestation period, minimal investment, maximum employment potential and quick turnover for investment (Kasi, 2000, 2009a and 2009b). Mulberry sericulture had been successfully used by two of the world's most populous countries i.e. China and India with population of 1.31 billion and 1.32 billion respectively (World population Bureau, 2007). Sericulture is a cash crop in the agriculture sector; it gives returns within 30 days. Hence, these help to rural people for the socio-economic development, women empowerment, increase children's education, social activities developments through sericulture activities in India (Siddappaji, *et. al.* 2014). Out of 6.39 lakh villages in India, sericulture is practiced in about 69,000 villages (Central Silk Board, 2002; Geetha and Indira, 2011; Lakshmanan, *et. al.* 2011). In India, sericulture is practiced as an agro-husbandry-based subsidiary occupation. From the household, women are employed in sericulture operations. About 50% of women are assisting men in this lucrative industry to produce the queen of textiles (Kannan, 1987). Sericulture activity

brings regular income to the community without any bias of caste, creed, gender, or religion. A remarkable feature of this activity is its egalitarianism-sericulture farmers, rich and poor, earn the same income from it. As women has a crucial role in the activities of sericulture, it equally creates opportunities and make them independent socially, economically, politically, and otherwise (Goyal, 2007; Pillai & Shanta, 2011; Thomas, Muradian, de Groot & de Ruijter, 2010; Vijayanthi, 2002). Women in rural India participate in a variety of economic activities. Women have been involved in the sericulture activities in various capacities *viz.*, worker, supervisors and supporting personnel within the family (Venkatesh, *et al.*, 2010). Sericulture is a labor intensive industry in all its phases. It can generate employment up to 11 persons for every kg of raw silk produced. Out of which more than 6 persons are women. More than 60.00 lakh persons are employed as full time workers in the production chain out of which 35-40 lakh persons are women (Rama Lakshmi C.S. 2007). It has been reported that women contribute about 50% of labour to mulberry cultivation and 60% of silkworm rearing respectively (Gate, 2001; Goyal, 2007; Panda, 2007; Singh, N 2006; Srinath, 2008; Thamizoli, 2001; Vijyalakshmi, V 2002). Undisputedly, indigenous people are considered as the weakest section of the population in view of common socio-economic and socio-demographic factors like poverty, illiteracy, lack of developmental facilities, (Thakur, *et al.* 1991). There are more than 58 countries practicing sericulture in the world. India is the only Country in the world to produce all the four known varieties of silk including Mulberry, Eri, Tasar and Muga (G. Savithri, P. Sujathamma and P. Neeraja 2013). Sericulture in India is a fairly organized activity in the cottage industry segment, largely rural based and labor intensive. Cultivation is spread Over 22 states, Covering 172000 hect. Across 54000 villages operating 258000 hand-looms and 29340 power loom (Dewangan, *et al.* 2011). India continues to the second largest producer of silk in the world and has 16.58% share in global raw silk production. Among the four varieties of silk produced as in 2012-13 Mulberry accounts for 18715 MT, Eri 3116 MT, Tasar 1729 MT, and Muga 119 MT of the total raw silk production of 23679 MT in the country. In 2013-14 the production increased up to 26480 MT and goes up to 30265 MT in 2016-17. The employment generation in the country is raised to 8.51 million persons in 2016-17 compared to 7.85 million persons in 2013-14 (Annual Report of Sericulture 2017).

In Chhattisgarh Tasar and mulberry are reared on commercial scale. Tasar is really named as Kosa. State possesses 59.77 lakh hact. of forest cover where 13952 hact. of forest plantation for tasar cultivation. 9844 hact. of sal forest, identify for secondary food plant of tasar silkworm. In year 2013-14 1.11 lakh families are involved in sericulture activity and produce 385 mt. Tasar silk which is 14% share of state. Sericulture practiced by the tribal of traditional Districts of Baster, Raigarh, Bilaspur and Surguja. Sericulture activities covered 765 hact. Of mulberry plantation, 08 mulberry seed center, 67 mulberry farm and 03 mulberry grainage. In Tasar sector CGSP center is 151, pilot project center 46, ISTP center 18, Block plantation 14, Basic seed farm 13 and other converted center are 47 in number. Numerous studies have brought out the vital role that women have been playing in all farm-related activities-ranging from land preparation to marketing like egg production, leaf harvesting, silkworm rearing, silk reeling, printing, dyeing and finishing of fabric wherein the delicacy and patience are major considerations. They constitute a higher proportion of the labor force in the agricultural sector than men like mulberry cultivation (50%), silkworm rearing (50%), silk reeling (49%), Throwing (56%), weaving (49%), By product utilization (65%) and spinning (80%) (Barman, 2001; Bose, Ahmed & Hossain, 2009; Joshi, 2000; Nathan & Kelkar 1997; Rahman & Routray, 1998; Satyavathi, Bharadwaj & Brahmanand, 2010).

MATERIAL AND METHODS

The present investigation was carried out in 2 Blocks namely Lailunga and Dharamjaigarh of Raigarh district, Chhattisgarh state, based on potentiality and production of tasar/mulberry cocoons, where both types of sericulture- mulberry and tasar are being practiced. Raigarh district is major tasar growing area where tribal are engaged in sericulture activity. Tasar silkworm rearing has been going on since 1956-57 and rearing of mulberry silkworm started in the year 1982-83. Sericulture activity covered 312042 acres; with 5739 beneficiaries out of them 3347 are scheduled tribe. Lailunga and Dharamjaigarh are rural populous blocks. The total geographical area of these two blocks is 600.47+1537.69 (2138.16) square kilometres. According to census

2011 population are 122405 for Lailunga and 207030 for Dharamjaigarh. Out of which schedule tribe is 82923 (41179 Male+41744 Female) in Lailunga and 136915 (67783 Male+69132 Female) for Dharamjaigarh. Sex ratio is 1006 for Lailunga and 1004 for Dharamjaigarh and population density is 212 and 135 per Sqkm.

Initially the list of Seri cultural villages and the names of beneficiaries were obtained from local Sericulture department of above 2 Blocks, The primary data was collected from the sampled respondents following the personal interview method using structured interview schedule standardized by Nagaraja (1989). In the above mention blocks four villages were selected with 25 beneficiaries in each village at random for collection of data. Thus, 100 beneficiaries were selected from each block. The farmers were post classified into main and additional based on the engagement of employment.

The information sought from the respondents/beneficiaries consisted of three types. The first type pertained to general information. The second type sought was related to Occupational Status, Employment days in a year, Total Monthly Income, Occupation before the Sericulture, Duration of Sericulture Work, Average Annual Income from the Old Occupation, Crops taken in a year, Cocoon produced in each crop, Profit from each crop. The third type of information pertained to the Losses in Sericulture, Compensation by Government, and Loan according to requirement, Traditional Business is affected or not, total labor period, Change in economic status, Change in Annual Income through Sericulture, Displacement by Sericulture, Impact of Sericulture in Life Style and economics of silk production. Primary and secondary data was analyzed using various statistical tools viz., mean, mode and median where the situation is the basis of vertically received.

RESULT AND DISCUSSION

On the basis of study, the analysis pertaining to employment, income, occupation, risks factor and social impact. In Lailunga & Dharamjaigarh block analysis of the first type of information related that the Kachha houses are 100%. On the other hand Pakka house are nil. Regarding ownership of house in Lailunga & Dharamjaigarh all the respondents have their own house.

It is observed that in Lailunga block the number of working members in 18 families 01, in 31 families 02, in 38 families 03, in 10 families 04 and in 03 families 05 members are working. whereas in Dharamjaigarh block the number of working members in 8 families is only 01 and the same way in 51 families 02, in 23 families is 03, in 15 families 04 and in 3 families 05 members are working. It is clear through the analysis that 3 members are involved in the occupation from the average families. It means there is a positive attitude of the members from each family. Sericulture was adopted as Secondary occupation by 82% beneficiaries from Lailunga and 100% from Dharamjaigarh Block.

A. EMPLOYMENT DAYS FROM SERICULTURE:

In Lailunga block 32% respondents received employment for 100-150 days and 65% received 151-200 days. 201-300 days' employment received by 3% and 301-365 days employment receiver's respondents are nil. In Dharamjaigarh 26% respondents received employment for 100-150 days and 74% received 151-200 days. 201-300 and 301-365 days employment receiver's respondents are nil.

B. INCOME FROM SERICULTURE:

The data indicate that total average monthly income in Dharamjaigarh is only Rs. 3770/- and in Lailunga Rs. 3840/- at their village itself. Whereas from the forest minor produce collection and disposal (once in a year) the average income of the respondents has been estimated for Dharamjaigarh Rs. 5350/-, and Lailunga it is Rs. 5950/-The average years of sericulture occupation in Dharamjaigarh is 12.25 and in Tamnar. 13 year. DFLs were supplied from Sericulture centers and their demand of dfls was easily fulfilled by the State sericulture department.

C. COCOON PRODUCTION AND PROFIT:

The numbers of cocoon produced are 5900/crop/beneficiaries in Lailunga and in Dharamjaigarh it is 6300. The economic gain by the respondent of Lailunga is Rs. 4720/-and in Dharamjaigarh it is

Rs.5160/-. The yearly production of cocoons by the respondent of Lailunga 18300 nos. and in Dharamjaigarh 18900 number. Average annual income about Rs 18220/- for Lailunga and Rs 16980/- for Dharamjaigarh

D. SERICULTURE AND RISK FACTOR:

198 respondents had been bore a loss from Sericulture and 02 had not suffered. It indicates the hardship and risk involved in it. Almost all attributed the loss due to fluctuation of atmospheric and adverse weather conditions viz heavy rains, high humidity and high temperature cause disease which leads to a complete failure of their crops. Out of 200 respondents only 1% get compensation from government where as 98% denied. All respondents are received full cooperation from the sericulture department. Only 11 respondent get loan as per their requirement and 189 not get.

E. SERICULTURE AND SOCIAL IMPACT:

It is observed that all the respondents attributed the following impact by Sericulture – Conservation of environment, No cutting and felling of trees, Interstate migration is checked, Local employment is generated. It served as additional income generating source, Regular savings habit has been developed, want to attach continue with the sericulture. It is suited to their lifestyle. The work is simple and can be done without any cost. Can serve better for the additional income generation and pave the way for the local employment generation. The total labour period has been estimated In Lailunga/Dharamjaigarh 8.08 hrs. All respondents agreed that their economic status has changed. It has been estimated that the annual income rose up to an average of Rs 19800/- respondent in Lailunga and in Dharamjaigarh block Rs. 20200/- .

F. MOVABLE AND IMMOVABLE PROPERTY:

It is observed in the study that in the status of movable property point of view the 66, 42 and 23 respondent from Lailunga block have livestock, Agriculture equipments and vehicles whereas in Dharamjaigarh block 93, 32 and 03 respondents have same. In the mode of immovable property from the Lailunga block 57 respondent have cattle house, 68 have agricultural land, 62 have house and 02 have well or biogas plant. In Dharamjaigarh block the same manner 41, 46, 44 and 04 respondent. The fixed assets earned from old occupation were estimated as Land and Building by 53 and 46 respondents from Lailunga block whereas it is 80 and 74 respondent from Dharamjaigarh block.

G. STATUS OF OCCUPATION:

It is observed that 58 respondent from Lailunga block are adopted agriculture as main occupation, 35 as agricultural labour whereas in Dharamjaigarh block 71 respondent adopted agriculture and 07 agricultural labour as main occupation. It is notable that in Lailunga block in all respondent family 148 male and 131 female human communities engaged in sericulture. In Dharamjaigarh block total 160 male and 147 female from the respondent family are engaged in sericulture. The main occupation related to sericulture is wormiculture (Rearing), agriculture and field formation (preparation) are adopted by respondent of study area. The economic status in old occupation was normal for 72 respondent, bad for 08 and very poor for 20 respondent of Lailunga block whereas it is measured normal for 82 respondent, bad for 18 respondent of Dharamjaigarh. The average annual income from old occupation was estimated as Rs. 19350/- for Lailunga and Rs. 20950/- for Dharamjaigarh block.

CONCLUSION

Sericulture is the part of the agriculture activities. More than 7.85 million persons are engaged in various sericulture activities in 2013-14 in India and in 2016-17 it is remarked as 8.51 million persons. It generates more employment opportunities when compare to other industry, especially in rural and semi-urban areas. So, sericulture is used as a tool for rural reconstruction. Sericulture has low gestation period and high returns. 60% of the women employed in down-stream activities in sericulture in the country. This achievement is possible because sericulture sector starting from farm management, leaf harvesting and silkworm rearing. Sericulture is an ideal programme for

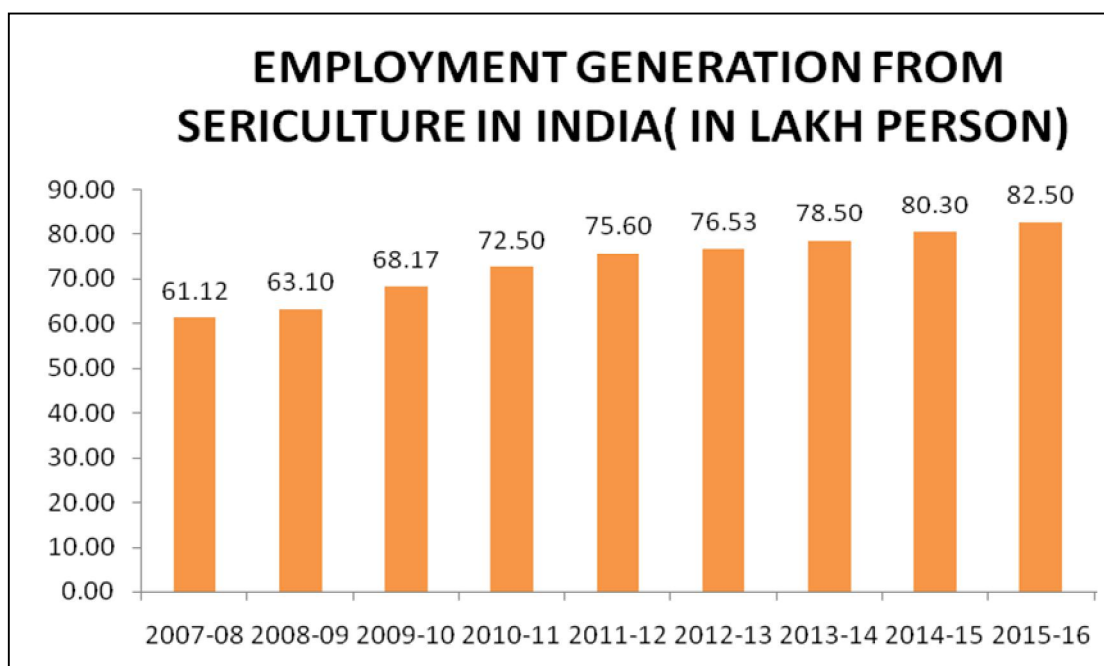
weaker section of the society because low gestation, higher returns. The sector involves mostly indoor activities with low requirement of physical energy and manual labor. Tasar silkworm process can offer supplementary gainful employment for tribal compare to other sericulture activities. Sericulture sector is a Eco-friendly activity because as a perennial crop with good foliage contributes to soil conservation and provides greenery. Waste from silkworm rearing can be recycled as inputs to garden. Sericulture activities enable the low income rural people as can reach higher income groups. Sericulture provides more than 50% employment to the respondent in a year thus stops the inter-state migration. According to the MNREGA (Mahatma Gandhi National Rural Employment Guaranty Act) population must receive 100 days employment in a year, whereas sericulture provides 151-200 days employment i.e., 55%. Due to these practices respondents earned around double income compared to their earlier income. It is noteworthy that adopting the Sericulture by tribal they conserve the environment by non-cutting and felling of trees because sericulture is now their way of life. Interstate migration is checked because sericulture provides additional income at their door level. Regular savings habit has been developed by sericulture practices among the tribes because they earn much more than their standard of living. It is remarkable that sericulture is suited the life style of tribe because practice of sericulture is simple and can be done without any cost and skill. As a woman has a crucial role in the activities of sericulture, its four major economic end-products, namely leaf, cocoon, silk yarn and fabric provide ample scope for employment of women. No wonder women are playing a very important role in the sericulture industry.

Table 1: Trend of World Raw Silk Production (in Mt)

COUNTRY	2008	2009	2010	2011	2012	2013
CHINA	98620	84000	115000	104000	126000	130000
INDIA	18370	19690	20410	23060	23679	26480
BRAZIL	1177	811	770	558	614	550
INDONESIA	37	19	20	20	20	16
IRAN	180	82	75	120	123	123
JAPAN	96	72	54	42	30	30
NORTH KORIA	00	00	00	300	300	300

Source: CSB, Bangaluru, Annual Report 2014

Graph 1: Employment Generation from Sericulture in India (in Lakh Person)



Source: Annual report of Central silk Board, Bangaluru 2016

Table 2: Vanya Food Plantation Area in Different States (Tropical Tasar) (in Hect.)

STATE	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Andhra-pradesh	8400	8400	8400	8200	8200	8228
Bihar	13263	13268	13319	13434	13708	14476
Chhattisgarh	3717	9928	10457	10889	12069	12522
Jharkhand	78399	74253	74253	84320	4725	5985
Madhya-pradesh	2148	7171	7171	7171	17612	17782
Maharashtra	16100	16100	16100	16100	18866	18866
Orissa	3651	9115	10987	11035	11440	11712

Source: CSB, Bangaluru, Annual Report 2014

Fig. 1: Preparation of Land for Plantation



Fig. 2: Tribal Women Going Forest for Collection of Cocoon



Fig. 3: Member of Usha S.H.G with Collection of Their Cocoon



Fig. 4: Member of Janak S.H.G. Busy with Reeling of Silk



SUGGESTION

1. The government should give them compensations for the losses incurred in this occupation due to diseases and the negative impact of natural factors.
2. There should be enough loan facilities for the improvement of their occupation which is still more beneficial.
3. The government should be encouraging them to make clothes along with sericulture occupation. Public Private Participation in the Post-cocoon sector and contract farming with N.G.Os and corporate participation.
4. @Convergence approach with forest, Rural Development, Women and Child Welfare, Industries, Tribal Welfare, Marketing, Finance, Insurance sectors, Energy Departments to bring in coordinated approach and action plans to maximize the benefits.
5. Training cum study visits to women and facilities for husbands to participate.
6. Externally aided projects integrating Water Shed Development, Agriculture Department (ATMA), Joint Forest Management, Waste Land Development, Tribal Development, Bio-technology, Science & Technology, Vanya Silks Projects etc.

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