

EMPLOYMENT OF RURAL WOMEN IN SERICULTURE - AN EMPIRICAL ANALYSIS

*S. Lakshmanan**

ABSTRACT

Employment of rural women has become an important issue in the aftermath of Economic Reforms in the country. As income and employment opportunities in agriculture are becoming increasingly uncertain due to persons migrating from rural areas in search of better income opportunities in urban areas, and escalation of cost of critical inputs in recent years, allied activities like sericulture offer sustainable income and employment for rural women throughout the year. In this context, an empirical study has been taken up in Tamil Nadu to show the contribution of women workforce in sericulture. The study also revealed that female labour participation is not only high but also the share of own family female labour employment is high. However, role of women in decision-making in sericulture has been limited, and not adequately recognised. This paper attempts to address several issues and strategies to empower women in sericulture.

Introduction

In India, women constitute about half of the total population. They are involved both in domestic as well as agriculture activities in rural areas. Participation of women workforce in the primary sector is more than 60 per cent. They support agriculture as a labourer as well as a decision maker. Although their contribution is noteworthy, still they are living as an invisible force in the sector. Their role has not been adequately recognised and rewarded. Income earned by rural women is generally utilised for domestic use as well as for the socio-economic development of their family.

It is observed that men migrate to the nearby towns in search of higher income oriented employment, leaving the total

burden of maintenance of households to women. For the improvement of socio-economic conditions of rural people, rural women are to be empowered both in income generating activities and in decision-making. This has become necessary to sustain the living conditions of the family in rural areas.

Several attempts have been made through various development schemes to increase their effective participation in the decision making process in agriculture and allied sectors. As a result, there has been a perceptible increase in the participation of women in agriculture. This has resulted partly due to rise in the seasonal demand for labour for operations traditionally performed by women, and increase in employment of men in non-agricultural activities.

* Scientist, Central Sericultural Research and Training Institute, Srirampura, Mysore 570 008,
e-mail : tamillakshmanan@yahoo.co.in

Sericulture is labour intensive, and assures employment opportunities round the year. More particularly, women play an important role in sericulture. In this context, an attempt has been made in this paper to trace their contribution, in terms of participation and constraints faced by them in this sector. Two hypotheses are proposed for the study. They are: (1) Mulberry cocoon production consists of women centric activities; and (2) Family women participation is much higher than that of hired women in cocoon production.

Methodology

The present study is based on primary data collected at farm households level in two districts of Tamil Nadu. Gobichettipalayam of Erode and Udumalpet of Coimbatore districts were selected for the study. 120 samples (60 each from the two settlements) were randomly selected to collect the required information by direct interview method. A Cobb-Douglas type of model was used to find out factors that contributed for employment generation of rural women in sericulture. The study period refers to 2005-06.

Work Participation of Women

Mulberry sericulture contributes more than 80 per cent of total silk production in the country. Production of silk cocoons at farm household's level involves two major economic activities, viz., cultivation of mulberry leaf and silkworm rearing. The former is on-farm activity, and the latter is off-farm. Both the activities engage largely human labour. Women are involved as farm workers as well as decision makers in the art of cocoon production. Their participatory role as workers is highly significant; and their rate of participation in silk cocoon production is much higher than that of male counterparts.

Mulberry Cultivation

Cultivation of mulberry leaf involves two major activities, namely, garden establishment and maintenance. Generally, garden establishment takes place for a period of 6 to 8 months depending on the mulberry variety, and availability of resources. On the other hand, maintenance of mulberry garden is a regular activity, and could yield continuously for 15 years. The data on women participation

Table 1 : Participation of Female Labour in Garden Establishment (Mandays/per acre)

S.No.	Activities	Family labour		Hired labour		Total labour		Male and Female participation ratio
		Male	Female	Male	Female	Male	Female	
1	Land preparation	3.56	2.10	2.35	1.65	5.91	3.75	1:0.63
2	Manuring	3.46	2.50	1.20	2.57	4.66	5.07	1:1.09
3	Cutting preparation	2.60	1.50	1.50	0.50	4.10	2.00	1:0.49
4	Plantation	3.35	1.50	1.45	4.50	4.80	6.00	1:1.25
5	Irrigation	6.75	3.54	1.20	0.75	7.95	4.29	1:0.54
6	Weeding	2.30	16.75	0.20	6.75	2.50	23.50	1:9.40

Source : Survey data.

in garden establishment are presented in Table 1. It is evident from the Table that, of the total labour engaged in garden establishment, women employment accounted for about 58.74 per cent, indicating higher degree of involvement than male labour. Like agriculture crops, establishment of mulberry garden also involves several activities, right from land preparation to plantation of mulberry cuttings, and application of inputs. For those activities, women participation has been considered to be crucial.

The activity-wise women engagement indicates that employment of women was higher in weeding operation (23.50 mandays) followed by plantation (6 mandays), manuring (5.07 mandays), etc. Thus, out of 77.56 mandays engaged in establishing mulberry garden, about 45.56 mandays of female labour were utilised in garden establishment activities. This shows that female labour participation is much higher than male labour (58.74 per cent). Another important finding is that the share of own family female labour

was to the extent of 62.31 per cent to the total women involvement in garden establishment. The male and female labour participation ratio has clearly showed that mulberry garden establishment activities are female centric, and their participation rate is much higher than that of male counterparts (1:1.42).

Unlike garden establishment, maintenance of mulberry garden is round the year activity. Generally, an average of six crops are being harvested by farmers under irrigated condition in the study regions. For every alternative crop, inter-cultural operations like weeding, application of chemical fertiliser etc., are being carried out; whereas activities like pruning of the garden and application of farmyard manure are taken up yearly once. In case of harvesting of mulberry shoots, it is a regular activity as and when rearing is conducted. All the activities are carried out by human labour. Table 2 highlights the women labour participation in garden maintenance.

Table 2 : Participation of Female Labour in Garden Maintenance (Mandays/per acre/year)

S.No.	Activities	Family labour		Hired labour		Total labour		Male and Female participation ratio
		Male	Female	Male	Female	Male	Female	
1	Inter-cultural operations	8.91	16.75	10.45	15.67	19.36	32.42	1:1.67
2	Application of FYM and NPK	3.45	5.75	3.20	1.60	6.65	7.35	1:1.10
3	Irrigation	28.70	2.60	6.21	0.75	34.91	3.35	1:0.09
4	Pruning	10.12	3.45	4.50	3.20	14.62	6.65	1:0.45
5	Shoot harvesting	20.45	38.20	15.35	38.60	35.80	76.80	1:2.14
6.	Miscellaneous	15.10	12.60	3.40	5.50	18.50	18.10	1:0.98
	Total	86.73	79.35	43.11	65.32	129.84	144.67	1:1.11

Source: Survey data.

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It is reported from the Table that garden maintenance activities involved 274.51 mandays, of which 129.84 and 144.67 mandays are employed by male and female workers, respectively. In terms of percentage of participation, it was 52.70 for female and 47.30 for male workers. It is to be noted that women employment was very high in shoot harvesting (76.80 mandays), and very low in irrigating the garden (3.35 mandays). The male and female participation ratio shows that women labour engagement was marginally higher than male workers. Activity-wise labour participation ratio further reveals that higher number of female labour are involved in harvesting of mulberry shoots and inter-cultural operations like weeding. Therefore, it can be inferred that both garden establishment and maintenance activities are female centric.

Silkworm Rearing

Silkworm rearing is the off-farm activity, as it requires a separate rearing shed and rearing appliances. The data on labour employment in silkworm rearing (Table 3) reveal that out of 218.89 mandays engaged in silkworm rearing, about 94.48 mandays are utilised by women workers, accounting for 43.16 per cent. The analysis of women participation activity-wise indicates that higher number of female workers are employed in cocoon harvesting and cleaning (18.90 mandays) followed by mounting (12.50 mandays). Further, rearing is skill oriented. Hence, participation ratio of women was lower in silkworm rearing (1:0.76) than male workers. However, the share of own family female labour involvement was much higher (55.38 mandays) as compared to hired female workers (39.10 mandays).

Table 3 : Participation of Female Labour in Silkworm Rearing (Mandays/per acre/year)

S.No.	Activities	Family labour		Hired labour		Total labour		Male and Female participation ratio
		Male	Female	Male	Female	Male	Female	
1	Disinfection	7.60	4.15	4.85	2.35	12.45	6.50	1:0.52
2	Chawki rearing	11.95	4.25	2.02	0.63	13.97	4.88	1:0.35
3	Late-age rearing	24.87	28.00	29.69	17.45	54.56	45.45	1:0.83
4	Mounting	6.78	6.97	2.56	5.53	9.34	12.50	1:1.34
5	Cocoon harvesting and cleaning	7.70	7.65	4.70	11.25	12.40	18.90	1:1.52
6	Marketing	8.42	0.58	5.14	0.00	13.56	0.58	1:0.04
7.	Miscellaneous	3.46	3.78	4.67	1.89	8.13	5.67	1:0.69
	Total	70.78	55.38	53.63	39.10	124.41	94.48	1:0.76

Source : Survey data.

Silk Cocoon Production

Cocoon production is an integral part of leaf production and silkworm rearing. Both activities are complementary to each other. As was stated earlier, leaf production is on-farm activity, and silkworm rearing is domesticated. Although cocoon production is labour intensive, participatory role of women has higher magnitude in general, and in particular own family female labour involvement. The aggregate data (Table 4) on male and female labour participation ratio for silk cocoon

production suggest that there is no doubt, on higher female labour participation in garden establishment and maintenance activities. However, in silkworm rearing activities, their workforce was much less than male workers. Considering all the activities, including garden establishment to silkworm rearing, there was almost equal level of participation of women to male workers (1:0.99). However, as far as own family female labour participation is concerned, their participation percentage was more (57.29) than hired female workers.

Table 4 : Male and Female Participation Ratio in Cocoon Production (Per acre/year)

S.No.	Activities	Family labour		Hired labour		Total labour		Male and Female participation ratio
		Male	Female	Male	Female	Male	Female	
1	Garden Establishment	23.55	28.39	8.45	17.17	32.00	45.56	1:1.42
2	Maintenance	86.73	79.35	43.11	65.32	129.84	144.67	1:1.11
3	Silkworm rearing	70.78	55.38	53.63	39.10	124.41	94.48	1:0.76
	Total	181.06	163.12	105.19	121.59	286.25	284.71	1:0.99

Source: Survey data.

Women in Decision-making

The foregoing analysis on women participation in various activities in silk cocoon production clearly shows that women play a greater role in cocoon production. It is also observed that cocoon production activities are female centric and involve higher participation of own female labour. In spite of their higher participation, it is viewed that women have not been given adequate importance in decision-making process. For instance, decisions on purchase of inputs, marketing of cocoons etc., are largely decided by male workforce. However, in the absence of male workers, women would take decisions on feeding, cleaning and applying bed

disinfectants in silkworm rearing. Such activities are more crucial to ensure quality and quantity of cocoon production. In other words, women involvement in decision-making process in cocoon production is viewed to be limited.

Factors Contributing to Employment of Women in Sericulture

To determine the important factors contributing to women employment in silk cocoon production, Cobb-Douglas type model was used. There are five variables included in the model, viz., family size, female literacy, age, mulberry holding size, and number of hired labour engaged, to find out their

influence on women employment in cocoon production. The findings are presented in Table 5. It may be observed from the Table that variables such as family size and mulberry holding size not only influenced positively but also were highly significant on employment of women in sericulture. This shows that these two variables were major determinants. It was also reported by a majority of sample farmers that non-availability of hired labour force led

to engagement of own family female members in cocoon production. However, female literacy and age of female workforce did not assist in employment of women. The R² value suggests that the variables included in the model explained 59 per cent of total variation. The DW statistic revealed the absence of auto-correlation in the cross-section data.

Table 5 : Factors Contributing to Employment of Rural Women in Sericulture

S.No.	Variables	Regression coefficient	SE	t-value
1	Family size	0.121	0.040	3.025**
2	Literacy	-0.301	0.216	-1.393
3	Age	-0.419	0.956	-0.438
4	Mulberry holding size	0.291	0.042	6.928**
5	Hired labour	-0.328	0.052	-6.307**
	R ²		0.59	
	DW statistic		1.894	

** Significant at 1 % level of probability.

Constraints Faced by Women

Although women play a major role in leaf production and silkworm rearing activities, they have been facing many constraints. Some of them are :

1. Low access to new technology
2. Low access to extension participation
3. Low access to marketing and income earning from cocoon production
4. Low access to credit
5. Lack of training
6. Limited participation in decision making process

Achievements made on Empowerment of Women

Although women contribute significantly in the process of cocoon production, yet their participation and contribution is neither adequately recognised nor rewarded. Their access to technology, credit, marketing and income is limited. This is partly due to their lack of awareness about their role in sericulture and partly, they do not have adequate knowledge about new technologies.

Women-friendly Technologies in Sericulture: Considering their disadvantaged position, there are several women-friendly technologies that have been developed in sericulture. To upgrade their skills and

knowledge in sericulture, several training programmes are being imparted through sericulture extension units. The tools and machines developed aimed at improving working efficiency of women workforce and

reducing drudgery. Table 6 shows the tools and machines developed in sericulture to avoid drudgery of women workforce. These are also being popularised in the field.

Table 6 : Tools and Machines Developed for Women's Empowerment in Sericulture

S.No.	Name of technology	Tools and machines developed
1	Weeding	Long handled weeding hoe, peg tooth weeder, grubber and self-propelled weeder
2	Harvesting of mulberry shoots	Pruning saw, sickle, and looping shear
3	Spraying	Electrical sprayer, and foot operated sprayer
4	Silkworm rearing	Hand operated deflossing machine, hand-cum-motorised deflossing machine, chawki leaf operated machine, and leaf chopping machine
5	Silkworm egg production	Cocoon cutting machine

Source: Central Sericultural Research and Training Institute (2006), Annual Report 2005-06, Mysore.

Training for Women in Sericulture : In recent years, efforts are being made to empower women in sericulture through various training programmes. Some of the

training programmes conducted at CSRTI, Mysore during 2006-07 are presented in Table 7.

Table 7 : Women's Empowerment Through Training in Sericulture During 2006-07

S.No.	Name of training programme	Duration (Days)	No. of women trained
1	Integrated Nutrient and disease management in mulberry by eco-friendly approach	06	70
2	Young age silkworm rearing	08	192
3	Composite silkworm rearing	35	18
4	Integrated pest and disease management- an eco friendly approach with bio-pesticides, bio-fungicides and botanicals	10	88
5	Value addition to by-products of sericulture industry by better resource management	06	231
6	Drudgery reduction through ergonomically sound appliances/hand tools	06	26

Source: Ibid.

Issues and Strategies

Notwithstanding the fact that several women-friendly technologies have been developed to reduce drudgery and training programmes in sericulture being conducted to empower them, still there are some issues, which need to be given prime importance by the sericulture development agencies. Some of them are discussed here.

(a) Credit Support: Important aspects for women's development are primarily knowledge-cum-skill development, and viability. This has direct impact on women empowerment as well as in reducing gender bias. The present position has resulted in women's disadvantaged situation arising out of their lack of access to resources and technology, low access to marketing, income sharing, and decision-making. One of the important missing links is lack of adequate credit support to women farmers, as it directly deals with accessibility of resources and decision-making. Although micro-credit mechanism in agriculture has become popular, it is largely lacking in sericulture. Therefore, efforts are to be made by NGOs and Sericulture Development Agencies (SDA) to access credit support through lending institutions to promote women participation more effectively in decision-making process.

(b) Access to Technology and Extension Support: Although many technologies were developed to help the women workforce in sericulture, their awareness and utility have not reached extensively in the field. Therefore, in order to educate rural women workforce in the utilisation of such women-friendly technologies, SDA should train women farmers, and if required, counseling can be organised periodically in the event of crop failure.

(c) Access to Marketing and Income Sharing: It is understood that women shoulder higher responsibilities right from cultivation

of mulberry to cocoon harvesting. However, they are denied access to benefits such as marketing of cocoons, and income earned from cocoon production. The prevailing social and economic condition in rural villages and family customs prevent women from participating in marketing directly. Therefore, it is time to create marketing avenues for women to sell their cocoons directly. This will help both in social transformation and in empowering the women workforce.

(d) Effective Women's Participation: There is need for a campaign for effective participation of women in the participatory role and decision-making process. Increasing rural migration by male workforce to urban places for seeking higher wage-oriented opportunities created more work burden for women. It has created a sort of compulsion on rural women to stay back in villages to take care of domestic works as well as farming. Hence, to reduce their work stress relatively, SDA should conduct health care campaigns and motivational programmes to improve their skills, and ensure their effective participation in sericulture.

(e) Implementation of Women Oriented Programmes: No doubt women contribute extensively to improve their social and economic conditions through increased participation. Although several schemes/programmes are being implemented in agriculture to improve the working conditions of rural women, similar developments are lacking in sericulture. It is suggested that the following schemes/programmes be implemented in sericulture by the SDAs in letter and spirit.

- (1) Establishment of mulberry Kisan nurseries by women managed self-help groups (SHGs)
- (2) Women-headed and women organised technical service centres (TSCs) to provide technical support to women workforce

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| <p>(3) Health-insurance for women workers who work for promotion of bio-fertilisers and bio-pesticides</p> <p>(4) Encouraging setting up of SHGs by women through creation of sericulture development fund by SDAs.</p> <p>(5) Plan for long-term projects for women development in sericulture.</p> | <p>activities are both women centric, and employ higher degree of own family female labour. Therefore, in this context, it would be appropriate as well as mandatory to empower them in sericulture, as women are not being given importance in decision-making and economic empowerment. In other words, they are not adequately recognised in sericulture in important activities like resource mobilisation and marketing. It is time to implement women development oriented projects by Sericulture Development Agencies to recognise their contribution and, increase their effective participation in silk industry.</p> |
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Conclusion

The analysis on women participation in cocoon production has proved the hypotheses that mulberry cultivation and silkworm-rearing

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