

Sericulture: An Economic Boon for Madhya Pradesh (special reference to Burhanpur District)

Rahul A. Rathore*¹, Dr. Madhulika A. Sonawane², Dr. Chandan Roy³

¹ Research Scholar, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon (M S), India

² Associate Professor, Department of Management, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon (M S), India

³ Associate Professor, Department of Economics, Kaliyaganj College, West Bengal, India.

Abstract: Economic development essentially bears a directly proportional relation with income and employment of a country. In fact the policy makers of any country always focus on this issue and adopt several measures to generate employment. Sericulture is one of such on-farm and off-farm activity which has the potential to generate employment to numerous low skilled rural people in India. Moreover, the final consumers of the silk fabric and goods are affluent sections of the society. Thus production and sales of silk goods ultimately help the economy to reduce the inequality among society.

Madhya Pradesh is a non-traditional silk producing state in India which has immense potential to uplift sericulture activities. However, a proper and regular monitoring by State and Central Silk Board is required to elevate the industry in desired direction. The present paper is an empirical study that focuses on the growth rate of raw silk productivity in Madhya Pradesh. The paper highlights the involvement of enterprising sericulture farmers in mulberry plantation and cocoons production and its impact on development of sericulture in Burhanpur District of Madhya Pradesh. The study observes that within a short span of time the state has improved its productivity in sericulture through making awareness campaign to the seri-farmers so that boon of upgraded technology can be communicated. The sericulture sector in Burhanpur is thus expected to improve the socio-economic life of the rural farmers

Keywords: Sericulture, Productivity, Growth, Mulberry, Cocoon, Madhya Pradesh

1. Introduction:

Today economic growth has become core issue for every developing nation while India is one of the developing countries that have shown tremendous growth in recent past. Indian economy is mainly an agriculture dependent economy as primary sector contributes around 15.4% share of country's national income in 2016-17, which is much higher than World average, i.e., 6.4% (<http://statisticstimes.com/economy/sectorwise-gdp-contribution-of-india.php>).

However, nowadays agriculture is not confined within production and cultivation of traditional crops; farmers are also hinging on cash-crops production and practise various other non-farm activities to upgrade their living-standard, to educate their children, to fulfil the basic amenities of life corresponding to this changing world. These activities include sericulture, horticulture, livestock etc. Sericulture involves a long chain of production process including both agriculture and non-agriculture activities. Cultivation of mulberry plants (which is the food for silk worms) is within agriculture sector while rearing of silkworms, reeling of cocoons, twisting, dyeing, printing, weaving of silk yarn and marketing of silk fabrics are all off-farm activities. This long chain of production generates huge employment opportunity both for rural and urban people. In 2016-17, employment generation in Indian sericulture was as high as 8.5million.

The word 'sericulture' is derived from the Greek word *sericos* which means 'silk' and the English word 'culture' originated from 'cultivation'. 'Sericulture' thus refers to cultivation of silk by rearing silkworms. As silk is a protein fibre secretion by silkworm, this worm forms a protective sheath known as cocoons and these cocoons are boiled and reeled to make silk yarn, which is woven to produce silk fibre, alternatively known as coarse silk cloth. Thus through a long process of production chain this precious and natural textile-fabric is produced. Due to its traits of being soft, light weight, glossy, graceful, silk was highly demanded especially within royal and aristocrat families.

India has a rich history of silk and its connectivity with 'silk road', the oldest trade route from East to West witnessed how trade of a textile fibre could change the economic status of a country.

Even today it has the potential to generate income and employment to a vast rural and semi urban people. Jobless economic growth which has become a major concern to the policy-makers can be tackled with the spread of sericulture and silk production. That would also diminish inequality among the rural society as sericulture involves a lot of landless and marginal farmer and women workers (Roy, Mukherjee and Ghosh, 2012). It also helps to reduce the migration of poor people and thus contribute in accelerating the economic development of country.

Today India is at second position in world to produce raw silk after China but there are huge gap between these two countries in production of silk. But still the new technology, government implementation programs and the increasing productivity area will diminish the gap in production of silk. In India 29 states are involved in sericulture activities they are categorized as traditional and non-traditional states.

1.1 Sericulture in Madhya Pradesh:

Madhya Pradesh is one of the non-traditional states in sericulture which have shown a tremendous growth in last decade and Burhanpur District is one of the old towns of Madhya Pradesh situated in east Nimar, a town known from Mughal period. Nimar is a renowned historical area and known for its silk power loom since Mughal period. Presently Burhanpur has become well known due to its agriculture and textile industry including sericulture. As a matter of fact, silk production in Burhanpur has started only few years back. The trend of production is progressing ahead with minor fluctuations. This paper will shed some light on the aggregate efforts both from institutional and farmers' level to improve the productivity on this area.

2. Research Methodology:

The paper focuses on the extension of 'mulberry plantation area' and rise in 'raw silk production' in Burhanpur district of Madhya Pradesh. It investigates whether the sericulture farmers are dependent on this livelihood (i.e., plantation of mulberry and reeling of cocoons) as part-time or full-time vocation. The study also tries to find out the impact of the productivity growth of sericulture. It emphasizes whether the marginal entrepreneurial farmer with small land holding (less than three acre) or the entrepreneurial farmers with huge land holding (more than six) are more involved with sericulture as fulltime vocation.

The paper also examines whether the sericulture farmers of Burhanpur District are cultivating mulberry in their whole plot of land or cultivating mulberry in partial plot of land & using the rest of the land for cocoon production. There is also another option of purchasing the mulberry from outside and using small plot of possessed land for cocoon production.

3. Survey Results:

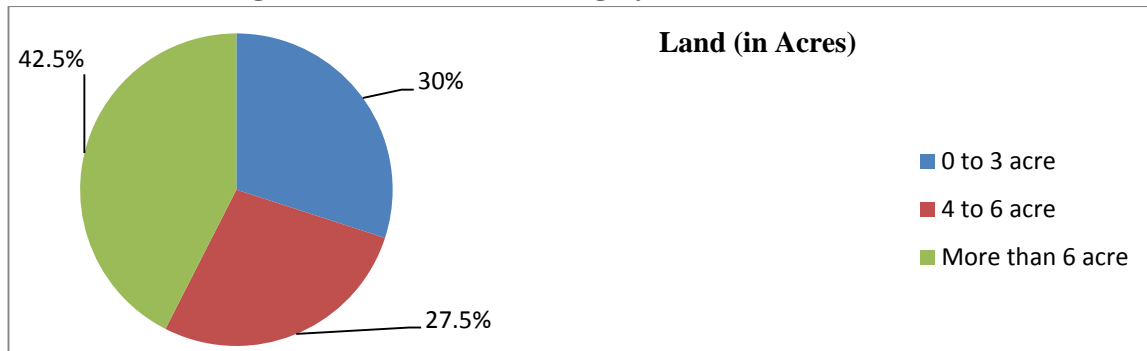
The present paper runs a pilot survey to test the hypothesis based on secondary data. The primary data is collected through simple random survey using structured questionnaire and interview method from 40 entrepreneurial sericulture farmers in Burhanpur District of Madhya Pradesh. The secondary data was gathered from various works done by the scholars in this filed before and also from reports and data published

by Central Silk Board of India and Directorate of Sericulture. For interpretation and analysis of data various statistical tools such as Chi-square and Simple Percentage methods were used.

Table1: Areas of Land possessed by Sericulture Farmers in study area:

| Land (in acre) | Respondent | % |
|----------------|------------|--------------|
| 0-3 | 12 | 30 |
| 4-6 | 11 | 27.5 |
| More than 6 | 17 | 42.5 |
| | 40 | 100 % |

Fig.1: Areas of Landholding by Sericulture Farmers



Source: primary survey

The figure 1 explains that sample of total 40 respondents in the study area 30 % farmers hold 0-3 acres of land , 27.5 % of them hold 4-6 acres of land and 42.5 % of farmer possess more than 6 acre of land.

Chi-Square Test:

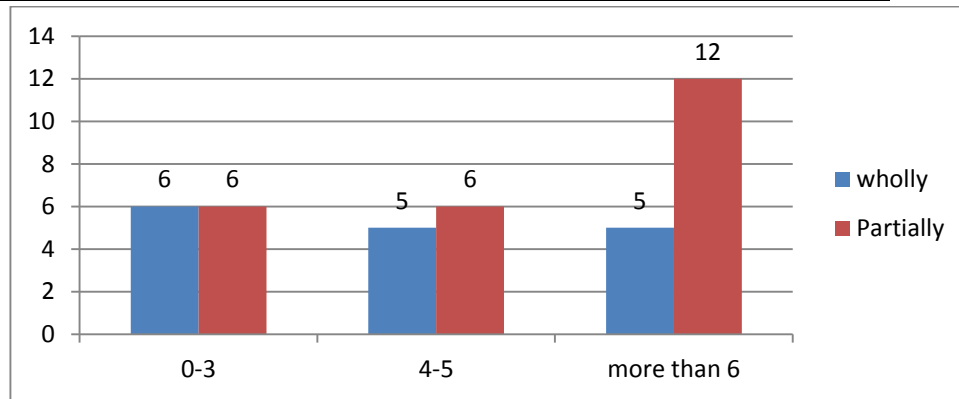
This test was used to analyze whether growth of sericulture is dependent on the area of mulberry plantation of sericulture farmers.

H₀ = The growth rate of sericulture is not associated with sericulture farmers who are involved wholly in mulberry plantation and cocoon production.

H₁ ≠ The growth rate of sericulture is associated with sericulture farmers who are involved wholly with mulberry plantation and cocoon production.

Table2: Nature of Farmers' Involvement in Sericulture

| Nature of Involvement in Sericulture | Land (in Acre) | | | Row Total |
|--------------------------------------|----------------|-----------|------------------|----------------------------|
| | 0-3 | 4-6 | More than 6 acre | |
| Wholly Involved | 6 | 5 | 5 | 16 |
| Partial Involved | 6 | 6 | 12 | 24 |
| Column Total | 12 | 11 | 17 | 40 (Grand Total) |

Fig.2: Nature of Involvement of Sericulture Farmers in Study Area

Source: Field Survey

In Figure-2 that respondents **wholly engaged** in mulberry plantation and cocoon production are symbolized by blue column. Thus among wholly engaged sericulture farmers 6 farmers hold 0-3 acres of land, 5 farmers hold land between 4 to 6 acres and 5 farmers hold more than 6 acres land. On the other hand, the red column represents **partially engaged sericulture farmers** which exhibit 6 partially engaged sericulture farmers with 0-3 acres of land, 6 farmers with 4-6 acres of landholding and 12 farmers with more than 6 acres of landholding in the study area.

The calculated value of $\lambda^2=1.4305$

The table of λ^2 for 2 Degree of Freedom (DOF) at level 5% level of significance is 5.991. So the calculated value of χ^2 is less than table value. Therefore the Null Hypothesis is accepted. Hence the primary survey witnessed that the growth rate of sericulture is associated with sericulture farmers who are partially involved with mulberry plantation and cocoon production. Hence, rise in these partial will boost the growth of sericulture sector. Therefore farmers of Burhanpur district should adopt sericulture as secondary livelihood option.

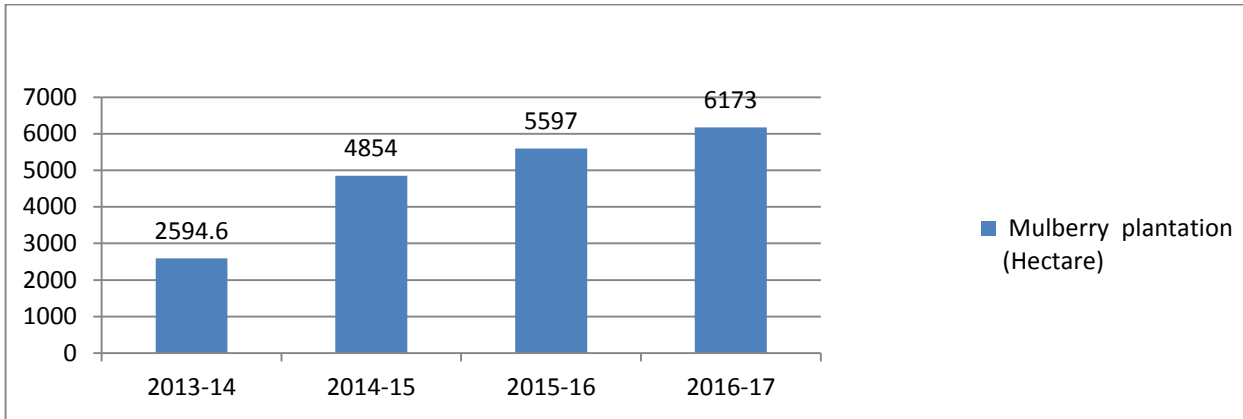
Table3: Growth Rate of Sericulture Cocoon in Burhanpur District, Madhya Pradesh

| Year | Production of Cocoon (Kg) | Growth Rate |
|---------|---------------------------|-------------|
| 2011-12 | 3160 | |
| 2012-13 | 4085 | 0.29 |
| 2013-14 | 35075 | 7.59 |
| 2014-15 | 180100 | 4.13 |
| 2015-16 | 250050 | 0.39 |
| 2016-17 | 19384 | -0.92 |

Source: Directorate of Sericulture, Madhya Pradesh

Table 3 shows trends of progress in sericulture in Burhanpur District of Madhya Pradesh

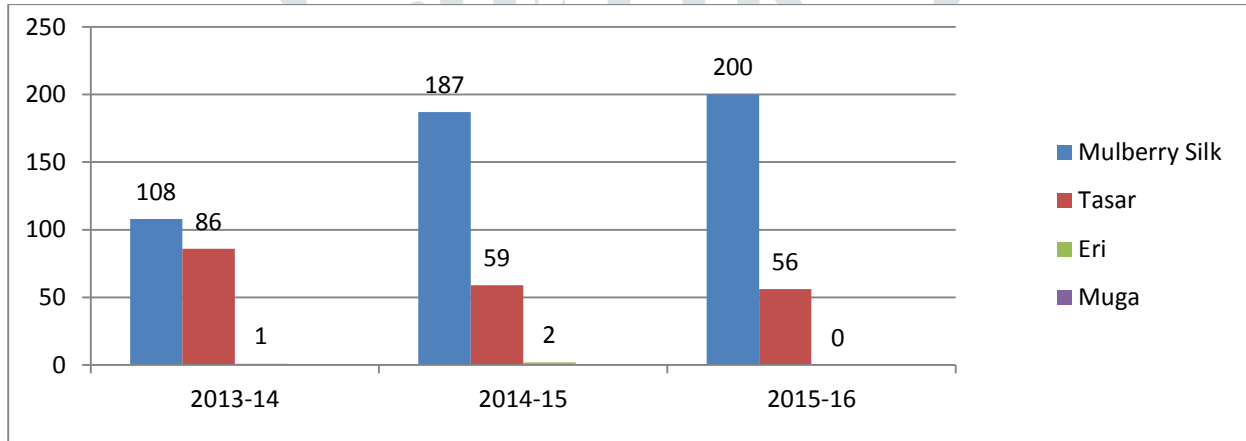
Fig.3: Mulberry Plantation in Madhya Pradesh (Hectare)



Source: Madhya Pradesh Silk Board

Fig.3 indicates an increasing trend of mulberry plantation in Madhya Pradesh and the graph shows extension of mulberry acreage every year. In 2014-15 the growth is 87.08 %, in 2015-16 it increases with growth rate of 15.3 % and in year 2016-17 the mulberry plantation growth was 10.29%.

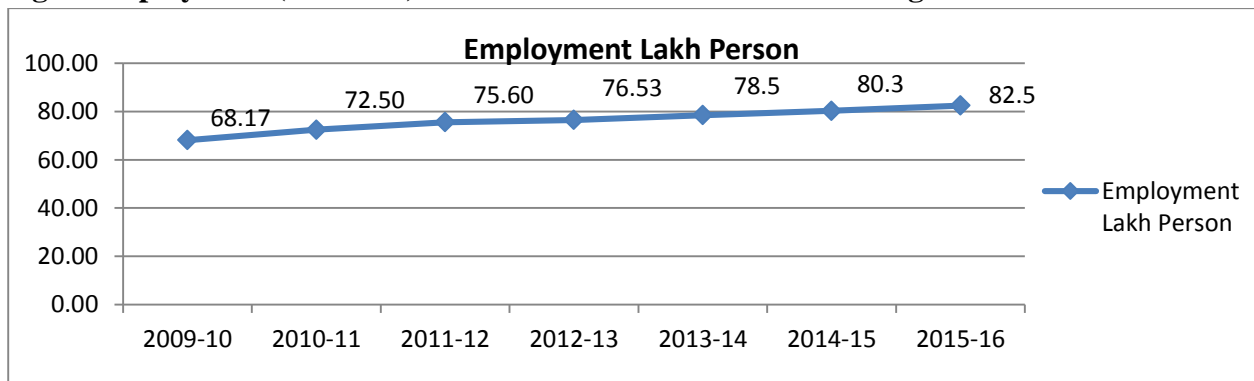
Fig.4: Raw Silk Production in Madhya Pradesh (MT) from 2013-14 to 2015-16



Source: central silk board

Figure.4 indicates raw silk production in Madhya Pradesh (MT) from 2013-14 to 2015-16 of four varieties of silk i.e., Mulberry, Tasar, Eri and Muga. In 2014-15 the mulberry growth was 73.14% and tasar was 31.39% and in 2015-16 the growth rate was 6.95% for mulberry silk but negative for Tasar Silk.

Fig.5: Employment (in Lakhs) in Sericulture Sector of India during 2009-10 to 2015-16



Source: central silk board

Fig.5 depicts positive trends of employment (Lakh Persons) during 2010-11 to 2015-16. The average growth rate hovers around 2-3% during 2011- 16.

4. Interpretation of Results & Conclusion:

The above analysis from the primary and secondary study help us to conclude that Sericulture in Madhya Pradesh has a huge prospective but this short survey in block study helps us to infer that farmers in Burhanpur district of Madhya Pradesh has adopted sericulture as a secondary occupation. This study determines that farmers are partially engaged in sericulture activities and most of the marginal farmers in study area cultivate mulberry in their small plot of land. Therefore the growth of sericulture in the villages of Madhya Pradesh can be claimed to be propelled by sericulturists who are partially involved in sericulture.

Sericulture in Burhanpur District of Madhya Pradesh has started in 2010 onwards and therefore as a new cottage industry it is bound to face some problems in its initial growth phase. Hence an appropriate development policy should be followed which would be conducive for the development of sericulture in its district. The knowledge of technology has found to have greater impact on improving the productivity and production in terms of agriculture as well as its allied activities. One of our earlier studies finds out that there is significant positive impact of variables like, full and partial knowledge about advanced technology and its adoption on the development of the sector. So knowledge and adoption level of advance technology need to be synchronized and extended on base level, making it more cost efficient and easily available to poor farmers and artisans (Rathore et.al., 2019).

Madhya Pradesh is a non-traditional state where production of raw-silk was initiated after Independence. The extreme hot climatic condition in Madhya Pradesh created severe problems in summer. The government should take initiative steps to monitor the system. Some awareness program will bring the interest of traditional farmers towards sericulture. The industry bears immense prospect in Burhanpur as partial sericulturists adopt sericulture for additional source of income.

Since sericulture sector generates employment to rural farmers, it can be considered as boon for rural farmers especially marginal farmers, who accept it as life line for improving their socio-economic life. Hence the state and central agency should make systematic framework and immediate efforts by proper supply of silkworm or disease free layings (eggs). New technique in mulberry cultivation, increase in awareness of sericulture programs all this activities will enhance this sector to a great height. As this study finds out that growth of sericulture in Madhya Pradesh is dependent on 'area of mulberry cultivation' as well as 'cocoon production', therefore extension of mulberry acreage as well as cocoon production should be given top priority from institutional level.

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