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RESEARCH PAPER
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Upliftment of Garo Tribal Women through Sericulture in Meghalaya

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ABSTRACT

Sericulture is one of the most labour intensive sectors, combining activities of both agriculture (sericulture) and industry. Silk, a naturally produced animal fiber of unparalleled grandeur is rightly called as The Queen of Textiles. An attempt has been made to carry out the study with the objectives: 1. To study the problems associated with sericulture enterprise by women entrepreneurs. 2. To suggest a strategy to support sericulture enterprise in Garo Hills. It has been found during the study that some of the major issues problems perceived by sericulture farm women were location issues, lack of physical infrastructure, lack of training, low base of skills and entrepreneurship, lack of knowledge, technical problems, managerial problems, socio-personal Problems, input problems related with sericulture, financial problem, market problem, complex land and partnership issues. Some strategies were proposed by researcher to improve sericulture are human resource development, promotion of community organizations, sustainability of the project, development of linkages, media support and use of information technology, empowerment of farm women, cluster approach, appropriate interventions, production of good quality silk, Balance the aspirations of farmers and weavers, quality based pricing. Sustainable sericulture ventures can promote job-led economic growth in rural areas through harnessing science and technology for environmentally sustainable and socially equitable development.

Key Words : Sericulture, Spinner, Weaver, Training, Skill, Entrepreneurship

INTRODUCTION

Silk, a naturally produced animal fiber of unparalleled grandeur is rightly called as The Queen of Textiles. It is characterized by exquisite qualities like the natural sheen, inherent affinity for dyes, vibrant colours, high absorbance, light weight, resilience and excellent drape, etc.

Sericulture "the production of silk" has been recognized as an agro-based rural industry since time immemorial. Silk is a way of life in India. Sericulture is one of the most labour intensive sectors, combining activities of both agriculture (sericulture) and industry. India is ranked as the second major raw silk producer in the world. It is this position, along with its immense employment potential that makes sericulture and silk, indispensable in the Indian textile map. Silk is a high value but low volume product. It churns out value added products of economic importance. India is unique in producing all the four commercial varieties of silk namely Mulberry (*Bombyx mori*),

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Tasar (*Antheraea proylei*), Muga (*Antheraea assamensis*) and Eri (*Samia ricini*) and stands second largest producer in the world. India holds the monopoly on producing the Muga silk. It is the only one cash crop in agriculture sector that gives returns within 30 days.

Geographically, Asia is the main producer of silk in the world and produces over 95 % of the total global output. But, bulk of it is produced in China, India, Japan, Brazil and Korea. India is ranked as the second major raw silk producer in the world. It contributes about 18% to the total world raw silk production. Among the varieties of silk produced, mulberry silk accounts for 89.45%, followed by eri, tasar and muga at 8.04%, 1.89 and 0.62%, respectively. About 40-45% of silk produced is from charka and about 40-45% is from cottage basins and the rest 10% silk is from multi-end reeling. It is this position along with its immense employment potential that makes sericulture and silk, indispensable in the Indian textile map.

Sericulture is one of the most labour intensive sectors, combining activities of both agriculture (sericulture) and industry. The production process involves a long chain of interdependent, specialized operations which provide a means of livelihood to a large section of the population, *i.e.,* silkworm seed producers, farmers-cum-rearers, reelers, twisters, weavers, spinners of silk waste, traders, etc. It is practiced in about 53,814 villages all over the country. It provides employment to about 6 million people, most of them being small and marginal farmers, or tiny and household industry mainly in rural areas. Silk and silk goods are very good foreign exchange earners. The Indian Silk goods have high export potential because of its distinctness and low production cost.

Over thousands of years, it has become an inseparable part of Indian culture and tradition. No ritual is complete without silk being used as a wear in some form or the other. Sericulture and Silk Textiles Industry is one of the major sub-sectors comprising the textiles sector. Sericulture is an agro-based cottage industry. It refers to the mass-scale rearing of silk producing organisms in order to obtain silk. Sericulture is an agro-based labour intensive industry.

The major activities involved in a sericulture industry are:

1. Cultivation of silkworm food plants
2. Rearing of silkworms for the production of raw silk
3. Reeling the cocoons for unwinding the silk filament and
4. Other post-cocoon processes such as twisting, dyeing, weaving, printing and finishing.

Sericulture emerged as an important economic activity, becoming increasingly popular in several parts of the country, because of its short gestation period, quick recycling of resources. It suits very well to all types of farmers and exceptionally for marginal and small land holders as it offers rich opportunities for enhancement of income and creates own family employment round the year. Sericulture is an important labour-intensive and agro-based cottage industry, providing gainful occupation to around 7.25 million persons in rural and semi-urban areas in India. Out of these, a sizeable number of workers belong to the economically weaker sections of society. There is substantial

involvement of women in this industry.

Sericulture and Meghalaya :

Sericulture and handloom weaving are two traditional village and cottage industries of the State. These twin industries portray the cultural ethos and rich heritage of the people of the state. Sericulture and weaving play a very important role in providing self-employment opportunities and additional earning especially for the rural women. These industries promote the sericulture farmers and handloom weavers for production of silk and handloom fabrics in the rural areas. The thrust areas of the sericulture sector are cocoon and silk production by development of systematic and economic plantation at farmer's level, so as to enhance the productivity per unit area and to step up production of best quality handloom fabrics so as to promote the socio-economic upliftment of the poor weavers.

The climate in Meghalaya is conducive for rearing of Eri, Muga and Mulberry silkworms. Rearing of Eri, Muga and Mulberry is being practiced by the rural people of the state, mostly by women. Entrepreneurship among women has come a long way in Meghalaya. Sericulture and Weaving provide important rural base industry for the development of the State. These twin industries portray the cultural ethos and rich heritage of the people of the state. Sericulture and weaving plays a very important role in providing self-employment opportunities and additional earning especially for the rural women.

Meghalaya stands out as one of the few states in India where an overwhelming number of women have always been the part of active workforce, due to their total involvement with agriculture, forest production, cattle care and dairying. Begum (2006) conceptualized that women entrepreneur's deal with the section of the female population who venture out into industrial activities. Rao (1991) identified the factors that impede and slow down the entrepreneurial development of rural women. Economic backwardness, lack of family and community support, ignorance of opportunities, lack of motivation, shyness and inhibition, preference for traditional occupations and for secure jobs were some of the factors that inhibit the promotion of grass roots entrepreneurship among rural women.

At present there are around 28,000 sericulture farmers and 23,000 weavers in the state. As there is a very good scope for development of sericulture enterprises in Meghalaya and entrepreneurship development is a probable solution for growing employment among farm women. Sericulture has a good scope in the hilly area of the State. Development of Sericulture could also help developing handloom weaving industry. This study was conducted to high light the efficacy of varied measures in bringing about all around improvement of women participation in sericulture in the state of Meghalaya.

I feel happy to mention that now the people are coming by themselves to take up the activities in both Sericulture and Handloom Weaving Industries. The climate for rearing of Muga Silkworms has been favorable in Garo and West Khasi Hills since time immemorial. Sericulture and handloom activities are now extending to the non-traditional areas and the response is very good. As such Sericulture and weaving is generating employment as well as increasing the socio - economic conditions of the rural people in the state.

Activities of Sericulture and Weaving in the state are improving a lot in respect to production of silk yarn as well as Handloom fabrics. Muga culture is very popular now in the state. In sericulture both on-farm *i.e.* management and cultivation of host plants for silkworms and off-farm activities *i.e.* rearing of silkworms feeding the foliage of host plants being involved, becomes a labour intensive rural avocation. A huge manpower is required for sericulture activities throughout the year and the

sericulture farmers utilize their family members particularly the aged persons and women folk in it. The importance of sericulture in rural development and utilization of rural women labour force in sericulture is well talked about, but information on extent of women participation, women as sericulture entrepreneur and technologies best suited for women are not well documented. Sericulture has been in practice in Meghalaya since ancient time.

Sericulture and Weaving in Meghalaya are the two most important cottage based, eco-friendly industries in the rural areas. These twin industries portray the cultural ethos and rich heritage of the people of the State. In the absence of a textile industry, Sericulture and Weaving can play an important role for the production of Silk fabrics and hand woven fabrics of ethnic designs. Till date around 15,900 families are involved in handloom activities and 16,000 families in Sericulture farming. The infrastructure of the Department was inherited from the earth while Assam Govt. and it became a full-fledged Department under the Govt. of Meghalaya in the year 1979.

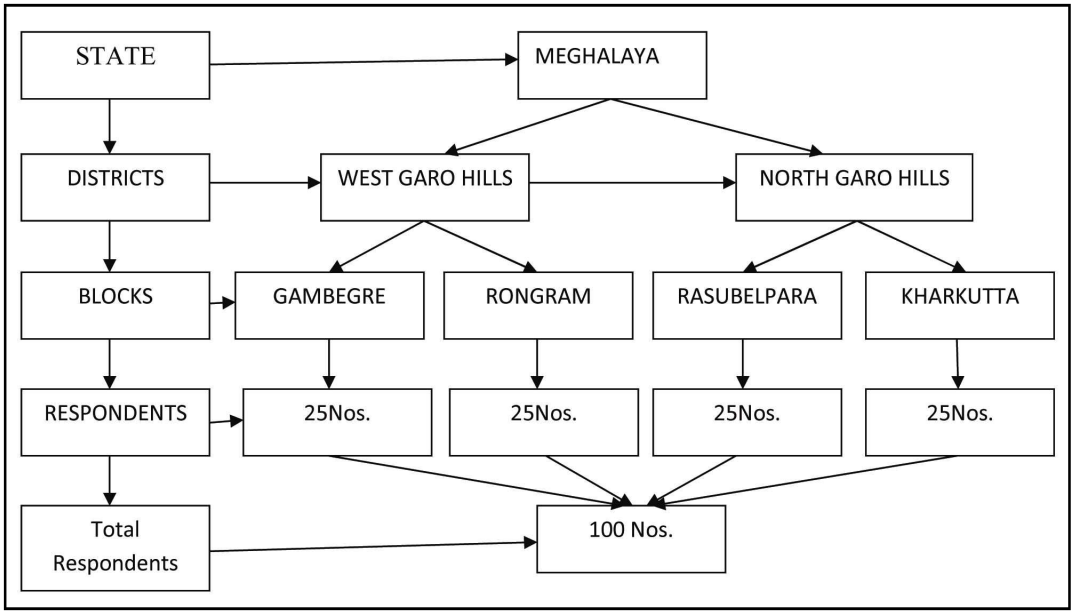
Hence, with this back up, an attempt has been made to carry out the study with the objectives:

1. To study the problems associated with sericulture enterprise by women entrepreneurs.
2. To suggest a strategy to support sericulture enterprise in Garo Hills.

METHODOLOGY

Selection of area :

Garo Hills of Meghalaya was selected purposively considering the availability of all types of sericulture farm women. Garo Hills is comprised of five districts out of which West Garo Hills and North Garo Hills have been selected randomly. Gambegre and Rongram blocks from West Garo Hills and district and Rasubelpara and Kharkutta blocks from North Garo Hills district were selected randomly.



Selection of respondents and collection of data :

The present study was conducted on exploratory type of research design. Data was collected from both primary and secondary sources. Different background information regarding sericulture

practices in Garo Hills, production, productivity etc. was collected from secondary sources, like Central Silk Board, District Sericulture office, Garo Autonomous District Council, District Commissioner's Office, Krishi Vigyan Kendra, State Agricultural Department etc. Primary data were collected for the study from four randomly selected blocks by using simple random sampling (without replacement). From each block, the name of the farm women engaged in sericulture was collected from respective block offices with the help of district sericulture office and Silk Board. From the list of the names of the farmers of the West Garo Hills district, 40 farm women was selected randomly and in the same way 40 farm women was selected from North Garo Hills district. Hence, altogether 80 farm women were selected, who were the sample respondents of the study. Out of the 80 respondents, 76 was approached and interviewed.

Tools used for data collection :

A pre-tested semi structured questionnaire was prepared considering different parameters relating to sericulture activities such as, socio-economic profile of the respondents, participation in various activities of mulberry cultivation and silkworm rearing and knowledge on sericulture improved technologies. Data were collected at farm women level by observation cum semi-structured interview schedule needed for the study.

Statistical analysis :

The collected data, both qualitative as well as quantitative, were analyzed in the light of the objectives of the study by using appropriate statistical tools like frequency, percentage and rank.

RESULTS AND DISCUSSION

Despite its rich resource base, various handicaps have prevented Garo Hills from developing strong linkages between the resource base and industry. Investment in industrial development has not been forthcoming in Meghalaya and particularly in West Garo hills for various reasons. Some of the major issues problems perceived by sericulture farm women:

Location issues :

The state's location within the northeast region, with its tenuous connection to the rest of the country through a 22 km strip of land, has cut its production centers off from the main markets of Kolkata and Delhi, as well as raised the price of inputs.

Fig. 1 : Garo Lady doing silk reeling

Physical infrastructure :

There is an absence of supporting infrastructure, both physical and financial. The hilly terrain, poor state of the roads and absence of reliable transport infrastructure add to transport costs and costs of production in this landlocked state. Existing power supply is inadequate to deal even with the present demand, even at this low rate of industrial activity. The state will need to have access to far larger quantities of good quality reliable power if it is to attract industry to set up production. Further, telecommunications remain tenuous at best, even though mobile telephony has begun to take off in the state. In short, the lack of connectivity to outside markets and centers hinders the growth of industry in today's climate which relies on quick and easy communication.

Lack of training :

It is observed that major technical problems related to sericulture enterprise were stated as lack of training on sericulture (74%) followed by the problem of transport (71.1%).

Low base of skills and entrepreneurship :

Despite its prominence as an educational hub for the northeast, Meghalaya has a paucity of skilled and trained professionals available for employment in the industry, because of the large-scale migration of young people in other parts of the country for work and training opportunities. An industry that sets up in the state may have to bring its own skilled workers, which may not always be practical. Another reason for the lack of industry is the general risk averseness of Meghalayans for various social and community reasons; they have traditionally preferred to invest surplus funds in fixed assets rather than in a business venture.

Lack of knowledge:

Awareness on sericulture technologies data recorded on knowledge of women on improved technologies of sericulture revealed that lack of proper knowledge about improved technologies coupled with low level of literacy. Their knowledge (5 point scoring scale) was shown in the table-1 revealed that their knowledge level was good but improvement is required for upgrading of knowledge particularly in case of disinfection of rearing house and appliances.

Table 1: Awareness of Sericulture Technologies

Sr. No.	Sericulture Technologies	Rating Scale of Point five
1.	Disinfection of rearing house and appliances	2.3-2.9
2.	Diseases of silkworm and maintenance of temperature and humidity in rearing room	3.0 - 3.4
3.	Improved mulberry variety, name of silkworm breeds/ hybrids	3
4.	Diseases of silkworm and their control measures	3
5.	Maintenance of hygiene during rearing	3
6.	Number of crops per year and diseases of mulberry plant	3.1
7.	Application of plant growth regulator	3.4
8.	Mulberry disease/pest control measures	3.5
9.	Dose of manure application	3.6

Technical problems :

Major technical problem found during the study was lack of training on agri- enterprises followed by transport problem.

Table 2 : Technical problems as perceived by the respondents (N=100)

Items	Respondents	
	Number	%
Absence of organization to guide	53	53
Inadequate availability of land/shed/premises	39	39
Lack of experience in management	54	54
Problem of transport	74	74
Lack of knowledge and skills on budgeting	55	55
Lack of training on agri-enterprises	76	76

Managerial problems :

Lack of experience in managing sericulture based enterprise (78.94%), absence of agencies to support (72.36%) are some of the prominent managerial problems.

Table 3 : Managerial problems as perceived by the respondents (N=100)

Items	Respondents	
	Number	%
Lack of managerial skill in entrepreneur	54	54
Low productivity in entrepreneur	24	24
Lack of experience in management	79	79
Absence of agencies to support	72	72

Socio personal problems :

It is prominent that major socio-personal problems were lack of support from other community members (68.42%), lack of support from family members (50%), lack of confidence to start the sericulture enterprise (36.84%).

Table 4 : Socio-personal problems related with sericulture as agri-based enterprise (N=100)

Items	Respondents	
	Number	%
Affects family life	22	22
Lack of respect for women	24	24
Lack of confidence in women	37	37
Lack of support by family members	50	50
Lack of support from other community members	68	68

Input problems related with sericulture :

Difficulties in production process Majority of sericulture practitioners had difficulties because of price of raw materials followed by poor knowledge of market and competition. Price of raw material (68%) is found to be major input related problems.

Table 5 : Input problems related with sericulture as perceived by the respondents (N=100)		
Items	Respondents	
	Number	%
General difficulties in production process	22	22
Pre-assessment of demand for product not done	24	24
Non-availability of raw material	37	37
Poor knowledge of market and competition	50	50
Price of raw material	68	68
Non-availability of raw material in market	22	22

Financial problem :

A key handicap is the low availability of credit in the state and the region. The credit-deposit ratio of commercial banks from secondary sources is found to be only 30% and of regional rural banks only 36.94% in 2009-10.

85.52% of the sericulture practitioners stated that high interest rate is one of the major financial problems, followed by inadequate loan facility (68%) and due to price fluctuation the input cost of the raw material also fluctuate to a great extent is stated as another major problem (42.10%).

Table 6 : Financial problems as perceived by the respondents (N=100)		
Items	Respondents	
	Number	%
Inadequate loan facility	68	68
High interest rate	86	86
Price fluctuation (raw material)	42	42
Lack of working capital	39	39
Loan repayment	29	29

Market problem:

About market related problem and as per data market was also found to be one of the major considerations. About 72% of the respondents stated that fluctuation in the demand is major market problem.

Table 7 : Market problem perceived by the respondents (N=100)		
Items	Respondents	
	Number	%
Lack of knowledge about product market	50	50
Fluctuation in demand	72	72
Low profit	40	40
Transportation	74	74

Complex land and partnership issues:

Land tenure systems are complex and varied in the state, and there is very little land that is not community-owned which can be used for industrial purposes, or as collateral for raising loans. Business can often only be conducted through partnerships, which are based on non-business considerations, as they involve having a local 'sleeping' partner and this has led to complications for

both partners.

Proposed strategies :

Based upon analyzing the perceived problems of sericulture farm women and identifying the issues related to low rate of industrialization, relevant and feasible strategies have been worked out for carrying out extension activities in the district for development of women engaged in sericulture. The strategies have been classified under 10 major groups as indicated below:

Human resource development :

Increasing techno-managerial capacity of farming community on Farming System Approach, acquaintance to gap in technical, managerial and organizational aspect can be taken up. Training to extension personnel on the importance of follow-up action and feedback, participatory research, extension techniques, behavioral science, interpersonal skills and training needs assessment techniques, Information Technology might be helpful. Skills up gradation trainings for grass root level workers are also needed. Specialized training course for NGOs, farmer, farm women and para-technicians might be one of the areas to improve upon. Organizing need based training program silk rears should also be being needed.

Promotion of community organizations:

Group approach is the cornerstone of the success. A major component of sericulture will be the mobilization of the community into farmers' groups—FIGs (Farmer Interest Groups), FOs (Farmer Organizations) and SHGs (Self Help Groups). Farmer's organizations will be linked with Panchayat through existing statutory institutional arrangements. FOs will be supported directly through public funds and will be involved in the planning, implementation, monitoring and feedback on the program. The ultimate aim is for FOs to internalize extension services for its members and provide backward (input, credit, technology) and forward linkage (post-harvest facilities, market, value added) in a vertically integrated arrangement.

Sustainability of the project:

Most of the projects do not sustain after the funds are withdrawn. Cost sharing with the farmers and building a revolving fund by ATMA (Agriculture Technology Management Agency), DRDA (District Rural Development Agency) and Department of Sericulture etc. need to be ensured for project suitability after the fund flow is withdrawn. Such type of other initiatives, where revolving fund and contingency plan is there can be thought off.

Development of linkages:

The establishment of strong linkage between research, extension, farmers and services providing agencies should be strengthened. To evolve farming community in decision making and delivering mechanism in sericulture, participatory approaches must be applied. Encourage farmers to share the cost and inputs to reduce the burden on public.

Media support and use of information technology:

All the block level Farm Information and Advisory Centre's in Garo Hills district would be electronically linked to district, state and national institutions. Central Government would support states in the use of electronic linkage so that marketing, research, extension and farming communities

are linked to each other at local, national and global market.

Empowerment of farm women:

Farm women contribute significantly to agriculture production, sericulture and household food security in the district. Their skill can be improved to reduce drudgery and to improve the quality of work through need-based training. The formation of women's groups on the concept of SHG or FIG is also considered essential for farm women.

Cluster approach:

The scattered nature of small enterprises tends to hamper production, as producers face problems related to access to markets for produce and raw materials, information about techniques and designs, and so on. This has been tackled successfully in other parts of the country through a cluster approach. This involves a location clustering of enterprises producing the same, similar or interrelated products, sometimes based on the same resources, which face common problems and markets. Meghalaya currently has two clusters-one in eri silk-weaving at Ri Bhoi district and one in cane and bamboo at Jaintia Hills. The functioning of these could be studied for recommendations and if successful could be expanded to other types of SSIs (Small Scale Industries).

Appropriate interventions:

In a nutshell, we can say that Meghalaya has the ideal environment for the development of a high-quality silk industry. This is possible if there are appropriate interventions in all stages of production and marketing. For a start, plantation areas for silkworm food plants need to be expanded in either the community lands or within individual holdings and the government has to provide the necessary support in the form of good quality silk worm seeds and promulgation of scientific methods of

Produce good quality silk:

Indian silk yarn is of poor quality, which not only affects our competitiveness in the world market, but has also resulted in a preference for imported yarn in the domestic market. Though the Indian breeds have the potential to produce the good quality of bivoltine silk, the problem arises due to lack of:

- Sufficient thrust on the adoption of improved technologies;
- Strict disease control measures;
- Quality leaf due to insufficient inputs to mulberry garden;
- Appropriate montages;
- Grading system for cocoons;
- Quality-based pricing system as well as use of young age silkworms.

Balance the aspirations of farmers and weavers :

The Seri culturists want imports of raw silk to be restricted and the anti-dumping duty on yarn to remain in place. Exporters and weavers, on the other hand, want the anti- dumping duty to be withdrawn so that they get an assured supply of yarn and are able to export more silk products at competitive rates. Also, there has been a decline in the cultivated area and the raw silk production during 2002–04 due to drought and dumping of Chinese silk at cheap prices.

Increase non-mulberry silk production:

Its production in the country continues to be unsteady and fluctuates from year to year. With its uniqueness, non-mulberry silk production in India has a great potential for value added exports.

Need for quality based pricing:

Reeling sector is an input-dependent activity and its operations are influenced heavily by three factors, namely, cocoon quality, cocoon price, and cocoon supply. But due to absence of quality-based price fixation, there has been very little quality control.

Given the fact that, the scope for enhancing the production of silk in the country by expanding the cultivable area is limited. Hence, vertical expansion through productivity increase by using advanced technology and skilled man-power is the only option. In fact, emergence of new sericulture technology has not only reduced the production risks (drudgery) but has also increased the potential cocoon yield/unit area, relative to the traditional technology.

Sericulture suits both marginal and small scale land holders because of its low investments, high assured returns, short gestation period, rich opportunities for enhancement of income and creation of family employment round the year. In reality, it is an occupation by women and for women because women form more than 60% of the workforce and 80% of silk is consumed by them. The nature of work involved in the sericulture industry such as harvesting of leaves, rearing of silkworm, spinning or reeling of silk yarn and weaving are carried out by women.

Conclusion :

Considering that two-thirds of the Indian population is employed (either directly or indirectly) in the agriculture sector, providing viable and sustainable business opportunities in Indian agribusiness is imperative for generating employment in the country. Sustainable sericulture ventures can promote job-led economic growth in rural areas through harnessing science and technology for environmentally sustainable and socially equitable development. Entrepreneurship in sustainable way is a key factor which has the potential to transform the face of rural India. A holistic approach to cultivating entrepreneurship amongst rural communities at large is essential. This can be done through sustainable livelihoods that can be generated in the sericulture sector by providing business solutions that envelop natural resource management and innovative eco-technological principles. Weaving of traditional shawls and textiles is a household occupation of most women in the state, and still continues in most rural homes. Around 90% of all weavers in the state are women. Meghalaya's weaving tradition is based on excellent skill and workmanship. At present, the silkworm farms as evident based on state data are inadequately equipped, poorly maintained, with ageing technology. Finally, the marketing of the produce requires market infrastructure (there is an absence of organized markets), enhancing managerial skills and technical know-how, and other inputs to ensure that producers receive a fair price for their produce are other necessities.

Introduction of modern improved looms or accessories could also provide production of quality fabrics. Sericulture and weaving weaving could also be intensified and as such, could provide employment to rural folks as a full time or a part time occupation.

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