International Association of Scientific Innovation and Research (IASIR)
(An Association Unifying the Sciences, Engineering, and Applied Research)

ISSN (Print): 2279-0020
ISSN (Online): 2279-0039

International Journal of Engineering, Business and Enterprise Applications (IJEBEA)

www.iasir.net

Entrepreneurial Opportunities in Sericulture Industry

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Abstract
India has glorious sericulture tradition of its own, which no other country in the world can share. Silk is indispensable in ceremonies and religious rituals, being a must in weddings and festivals. India's traditional and culture bound domestic market and an amazing diversity of silk garments that reflect geographic specificity helped the country to achieve a leading position in silk industry. Sericulture is one of the most labour intensive sectors, combining activities of both agriculture 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 52,360 villages all over the country and employment to about 7.56 million people, most of them being small and marginal farmers in rural areas, creating employment to at least for 12-13 people per hectare of mulberry; hence migration of people from rural to urban areas in search of jobs can be minimized. In view of the significance of the sericulture industry in providing employment/entrepreneurial opportunities in the production process of silk and silk fabric, an attempt was made to discuss the entrepreneurial opportunities in the Industry

Keywords: Sericulture, agro-based industry, entrepreneurial opportunities

I. Introduction

Sericulture is the art and technique of silk production. Traditionally, Indian economy is largely dependent on the success of agriculture and allied farm activities. Sericulture being an agro-based enterprise plays a predominant role in shaping the economic destiny of the rural people. It holds promise as an employment generating industry, especially in rural and semi-urban areas.

Silk the undisputed queen of fabrics is not only elegant but also the strongest and most versatile natural fabric that lends a touch of luxury and elegance, much desired in high fashion clothing it is versatile with its drape, weaves, texture, blends vibrant colors, prints and blends. India has a glorious sericulture tradition of its own. Silk is indispensable in ceremonies and religious rituals, being a must in weddings and festivals. From this, it is very clear that it has very strong domestic market, which is a real strength of our sericulture industry. The labor intensive industry remains one of the major strengths of India fascinating with its most exquisite workmanship and beauty which no other country has ever been able to replicate. Silk has always been fashionable and for the last few years, it has remained a strong component of the international fashion trends.

Natural sheen, inherent affinity for dyes and vibrant colours, high absorbance, light weight, resilience and excellent drape etc. have made silk, the irresistible and inevitable companion of the eve all over the world. Chemically speaking, the silk is made of proteins secreted in the fluid state by a caterpillar, popularly known as silkworm, *Bombyx mori.*

Sericulture is multidisplinary activity consists of food plant cultivation (mulberry leaf production), silkworm rearing (cocoon production), silkworm egg production, silk reeling (yarn production), twisting, Warp and weft making, printing and dyeing, weaving, (fabric production), finishing, garment designing, marketing etc. The industry encompasses different on-farm and non-farm activities, with diversified nature of skills, involving heterogeneous group of people, bringing people of various walks of life together work for the production of silk. Sericulture is continuous activity and employment is available throughout the year. Sericulture involves low investment with frequent income with 5-6 crops per annum Once the mulberry plantation is established it will continue to yield consistently for 15-20 years with minimum expenditure for maintenance. Division of mulberry garden into plots with alternate harvesting timings could enable the sericulturists to carryout silkworm rearing throughout the year continuously with 10-12

crops/year. Basic sericulture activities are village-based; hence migration of people from rural to urban areas in search of jobs can be minimized. There is a high export possibility creating trade surplus and a good source for earning foreign exchange. Presently India is earning more than Rs 3,000 crore rupees from export of silk fabrics, waste and garments. In addition to high export opportunities, silk is having very good domestic market and strong handloom base blended with artisan skill, which is the real strength of the Indian sericulture industry.

Silk industry is a labour intensive in nature, which is mainly a cottage industry in India providing livelihood to more than 9.42 lakh families. Nearly 7.56 million people are currently engaged in sericulture and silk production. Sericulture with a broad agriculture base is seen as an effective tool for rural development and reconstruction. The various entrepreneurial opportunities in sericulture Industry starting from leaf to fabric production are hereunder discussed

- Raising of high yielding mulberry saplings
- Silkworm egg preparation and supply
- Young age (chawki) silkworm rearing centers
- Cocoon production
- Silk reeling
- Silk twisting
- Silk yarn degumming and dyeing
- Silk weaving (handlooms and powerlooms)
- Silk dyeing and printing
- Developing designs and screen making
- Garment designing
- Cocoon and silk based handicrafts
- Spun and Noil yarn production
- Recycling of sericulture By-products.
- Silk trade (domestic and export marketing).
- Zari manufacturing.

A. Raising of high yielding mulberry saplings:

In commercial cultivation, the mulberry garden is generally established through stem cuttings, using saplings for the establishment of the garden has got many distinct advantages over direct plantation of cuttings. Saplings are rooted-cuttings and are used as planting material, because of well-developed root system. Saplings get established quickly & grow vigorously. Realizing the importance of initial establishment of garden by using saplings more and more farmers are preferring saplings for the establishment of the mulberry garden. Hence production of saplings in a large scale can be taken up as one of the income generating activity. By following standard nursery techniques from one acre of nursery about 1.28lakhs of good saplings can be raised with the cost of production of Rs.0.50/sapling. A net profit of approximately Rs. 50,000-60,000/- can be obtained by raising saplings in one acre considering the selling rate of Rs.one rupee per sapling. Cultivation of mulberry is necessary to do silkworm rearing, as the mulberry leaf is the only food plant for silkworm larvae.

B. Silkworm egg preparation and supply:

The silkworm seed is the heart of sericulture industry. The silkworm seed is produced in grainages (egg production centers). The ultimate aim of production of silkworm seed is to produce cocoons to get quality silk yarn. Success of sericulture depends on quality silkworm eggs. Therefore management of seed production, play important role on overall returns. To produce quality seed, it is very important to adopt scientific methods of egg production process, right from seed crop rearing to egg incubation. There are not only government grainages but also licensed seed producers under private sector to meet the existing demand of silkworm seed production. The venture is highly profitable, each rupee of investment will fetch one rupee as net profit.

C. *Chawki rearing (young age silkworm rearing):*

The first and second instars of silkworm are considered infant (or) young age silkworms are called chawki worms. Chawki worms are delicate and susceptible to diseases. Scientific rearing of young silkworms is critical for successful harvest of cocoon crops. Hence they have to be reared with utmost care on scientific lines. The young age larvae occupy 8-10 days of the larval period. Careful rearing at this stage is crucial for

the health and hardiness of latter instars. That's why it should be reared with utmost care. Successful chawki rearing increases total cocoon yield by not only reducing infant mortality and also by lowering the incidence of disease in later ages by their resistance and ability to tolerate adverse conditions. Efficient maintenance of chawki centres and the supply of healthy worms after completion of 2^{nd} instar will fetch high dividends, improve the cocoon crops and reduce the drudgery to the sericulturists. As an enterprise it will provide remunerative self-employment to the rural and educated women and youth for successful cocoon crops.

D. Cocoon production:

Silkworm rearing is an agro-based activity, since it involves mulberry cultivation. Silkworms are reared for the production of cocoons which is the raw material for the silk production. Under ideal conditions the silkworm completes cocoon formation in 24 to 28 days from the day of hatching. At the end of 5^{th} instar it ceases its feeding and spins a golden cocoon. The farmers rear silkworms and produce cocoons. By marketing the cocoons the farmers earn money. It is ideally suitable for the rural folk.

E. Silk reeling:

Reeling is the process of unwinding the silk filaments from the cocoon and combining them together to make a thread of raw silk. As the filament of the cocoon is too fine for commercial use, three to ten strands combined together and reel the silk to produce the desired diameter of raw silk which is known as 'reeled silk'. Presently silk reeling is carried out by using three types of reeling devices viz., charka, cottage basin, filature reeling machines. The cost and benefit ratios were more or less same in the cottage and Filature reeling units compared to charka units.

The raw silk produce by the silk reelers is marketed through silk exchange. On the basis of quality of raw silk the floor price is fixed and then they are auctioned. The silk exchange enables the reelers to get immediate cash for the raw silk transacted by the reelers. The silk production is industrial activity, is best suitable to the educated youth to produce quality silk and to earn their comfortable livelihood and to provide employment to others.

F. Silk twisting:

After the process of reeling and re-reeling, the next step before weaving is twisting. The raw silk can not be directly used for weaving. The raw silk is to be twisted before they are fed into looms. The operation of conversion of raw silk into twisted silk, is termed as twisting. Twisting of silk yarn may be done in single thread (or) double thread depending upon the type of yarn required for weaving. It gives more strength to the fabric. It improves the quality, appearance, feel and elasticity of the silk fabric. Twisting facilitates easy weaving, degumming of yarn and further chemical processing. Certain fabric constructions such as chiffon, georgette, crepe, crepe-de-chine etc, need highly twisted silk yarn. Twisting is undertaken either by separate entrepreneurs or by the weavers themselves.

G. Dupion silk:

Raw silk reeled from double cocoon is known as Dupion silk . It is usually a coarse uneven and rough silk thread drawn from double cocoons. Dupion silk fabric is in great demand in temperate countries, due to their warming character and soft feel. Dupion silk with even and uniform size is used for weaving dupion silk fabrics of plain, twill matty and satin classes. Such fabric is used as dress materials both for men and women. Small quantity of dupion silk yarn is commonly used for carpets, furnishing cloths, curtains and shawls. Indian dupion, has captivated the western world where it is in great demand as a dress material, furnishing fabric for cushion covers and beautiful jacquard designs and as bed spreads. Dupion is a popular name among the overseas silk importers.

H. Spun silk:

About 30-35 percent of silk waste on the weight of raw silk reeled is being produced in the reeling industry. Besides this reeling waste, pierced, inferior, cocoons which are not suitable for economic reeling can be utilized for the production of spun silk yarn which is nothing but pure silk thread of course with less evenness. Spun silk is used for shantung, pile fabrics, dress trimmings and linings, elastic webbings, sewing silk, summer wear silks, velvets, umbrella fabrics and insulation.

I. Noil yarn:

Noil yarn is a short stapled residue from the dressing operation of silk spinning. In short, it is the end product of silk. From the cocoons, raw silk is reeled, while reeling silk, a by-product, silk waste, is

obtained. This waste is converted into a fine spun silk yarn, in the process, the droppings are collected and spun into noil yarn. The noils can be spun from coarse counts ranging from 2's to fine counts such as 20's depending on the quality of droppings. Indian noils are consumed in large quantities in the carpet manufacture in Kashmir.

J. Silk dyeing and printing:

Dyeing is the process of imparting colour to a textile material. The first step in silk dyeing is the "boiling off" or scouring process. This removes the gum that is found in all natural silks. Silk, as it comes from the scouring, is ready for any dye tint or shade. After dyeing, the skeins are again dried, run through another equalizing machine similar to the stretcher, and then rewound into the form in which they are wanted by consumers. The silk is now ready for the weaving. Silk dyeing is an important commercial activity to fetch the good dividends.

Printing is described as localized dyeing. Printing produces the colorful effect on the fabrics. Printing can be done by hand or by machine. Block printing and screen printing are the examples of hand printing and Direct roller, discharge, resist and pigment printing are the examples of machine printing. Painting can also be used to decorate our fabrics but these need special care, creativity, skill and treatment. Printing process involves preparation of printing paste, printing, fixation of prints, washing and finishing. Printing is one of the best enterprises especially for women.

K. Silk weaving:

The silk weaving is done either on handlooms or powerlooms. The handloom sector is one of the largest employers in India**.** The sector represents the continuity of the age-old Indian heritage of hand weaving and reflects the socio-cultural tradition of weaving communities. Saree is the biggest item of production on handlooms as well as powerlooms in India. The handlooms weave sarees with all types of designs including complete motifs with the help of dobby and jacquard and also some designs that can be performed better only manually. The traditional silk sarees and dhotis are made on handlooms, whereas the printed sarees, dress materials etc are made on power looms.

L. Finishing:

Both dyed and printed silk fabrics have to undergo certain mechanical and chemical finishes to have certain desired effects. The treatments are generally known as finishing treatments. The conventional finishing treatment on silk includes calendaring, weighting, scrooping, starch and glue finish. The purpose of finishing is basically to impart or improve certain desirable qualities like drape, fall, handle, feel, stiffness, weight etc., thereby enhancing both aesthetic value and utility. This also enables the fabric to fetch a better price in the market. Latest developments are also being made with regard to imparting certain special finishing such as anti-crease and flame retardant finishes.

M. Knitting:

Silk-knitting is a very important activity which produces a very wide range of clothing articles. Knitted fabrics are constructed by interlocking a series of loops made from one or more yarns. The needle is the basic element of all knitting machines. Silk knits, both underwear and outerwear are gaining popularity in the rapidly rising apparel market for natural silk. Knitting gives hosiery items that ideal elasticity and that plastic character which no other article can rival.

Silk knit fabrics could contribute 5-10% to the total export of silk materials, currently worth Rs.1500 crores from the country. Silk knit T-shirts, sweaters and children wears have tremendous scope and huge export demand in Europe, the US, Japan and China is a major contributor. India had the advantage of the availability of moisturous and lustrous looking raw materials.

N. Zari manufacturing:

The gold coated sliver thread containing the silk core is called "ZARI". The gold lace zari, is used to create glittering ornamentation and gives a touch of class to the fabric. Zari is a silver thread with gold polish which will be winded to an extremely fine silk thread. Surat is the main centre in the country for the manufacture by the house-hold zari units in surat. An estimated 85% of the zari produced is used in India and only 15% of the left over zari finds export. Zari is used to enhance and adorn dress materials, purses,

scarves, collars and finds use in many decorative articles. Fascinating zari textiles and embroidered zari goods like purses, bags etc., are sold mostly in the European markets and the United States of America. There is ample scope for the new entrepreneurs in this industry.

O. *Recycling of sericulture Byproducts*:

During the production process a lot of waste material results along with the main product at every stage of sericulture activity. In sericulture and silk industry nothing goes as a waste. All the leftovers i.e. by products whether it is litter, pupa, cocoon or silk waste are useful and can be well utilized in the industry. Effective utilization of waste generated in the industry will help in making the sericulture sector more viable, stable and create more employment opportunities, increase the production of value-based product and generate handsome income for the sericulturists. Therefore byproduct utilization and management deserves as special mention which could make sericulture further more attractive.

P. Cocoon and silk-based handicrafts:

Cocoon handicrafts are not only an answer to one's natural instinct to do something special, but also to generate additional employment and revenue by utilizing waste cocoons and silk generated in the production process. Cocoon and silk based handicrafts like flower bouquets, garlands, dolls, greeting cards, wall hangings etc., call for creativity and simple techniques. There is a tremendous scope for developing the handicrafts industry in the rural and urban areas by having tie ups with various marketing agencies.

Q. Vanya sericulture

Vanya sericulture remained obscure for a long time as an exclusive craft of tribal and hill folks inhabiting the Central and North Eastern India. It is in the recent past that this tribal tradition assumed importance and attracted attention at National level. The rich production potentialities within the country, steady demand for vanya silk products outside, eco-friendly nature of the production and processing activities, women participation, promoted commercial exploitation of this craft, which culminated in the transformation of this age old tradition to an industry of immense employment potentiality.

R. Silk trade:

It is estimated that the world trade in silk is about US $ 6 billion. India's share has been about 6.6 per cent. There is scope for further development in total world trade as well as Indian exports. Exports of Indian silk products comprise mainly natural silk, fabrics, made-ups, ready-made garments, silk carpets and silk waste. Indian silk exports have grown during last few years, rising from Rs 1250.55 crores in the year 1998-99 to Rs 2421.98 crores in the year 2011-12. The export of silk goods during 2003-04 was Rs 2779.19 crores (US $ 604.7 million). The silk goods exports during 2005-06 was 3194.20 crores (US $ 721.53 million) showing an increase of 11% over 2004-05 which was Rs 2879.56 crores(US $ 640.90 million). In 2011-12 the foreign exchange earned is shown decreased trend compared to 2005-06. India silk market utilizes 85 percent of its production.

II. Conclusion

It is obvious that it is clear that sericulture industry is an excellent avenue for employment with various entrepreneurial opportunities. India lives in villages: Sericulture being an agro-based enterprise plays a predominant role in shaping the economic destiny of the rural people and fits very well in the India's rural structure, where agriculture continues to be the main occupation. The pursuit of sericulture offers gainful employment not only the rural masses but also for the educated youth in semi-urban and urban areas. Sericulture growth will certainly lead to vibrant rural by creating income generating entrepreneurial opportunities enabling poverty reduction and arresting rural to urban migration of the rural poor.

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