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Kashmir sericulture - Its economic potential

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Sericulture has been identified as one of the important component for economic development in India. Its uniqueness lies in the fact that the sericulture activities not only engage the rural house holds in the cultivation of mulberry and silkworm rearing but also encompass in their fold a whole range of reelers and weavers. Recognizing this important role of sericulture in Kashmir present communication discusses four main issues in this economic sector such as agrarian economy, employment generation, competition from other crops, its innate rituality in addition to approaches for its improvement.

Reasonable or high productivity is the essential pre-.requisite of any enterprise, industrial or agricultural. This is true of sericulture also. Productivity is a relative term which varies from person to person, region to region; season to season and time to time but Kashmir sericulture is characterized by low productivity and higher cost of production. In India's raw silk production contribution of Jammu & Kashmir state is very small as 98 % of its mulberry raw silk production is contributed by the five traditional states of sericulture namely Karnataka (55 %), Andhra Pradesh (30 %), West Bengal (9 %) and Tamil Nadu (4 %) (Sericulture and Silk industry Statistics - 2003). Although Kashmir was at one time the premier producer of silk in the country. Today, both sericulture and silk in the state have not only kept pace with progress in other states but have undergone a steady decline. The comparison indicates a wide gap between raw silk out put and reeling cocoon production which obviously reflects upon the poor yield & quality (Table 1 and 2). Sericulture has an important place in the economy of J&K, inspite of all odds it faced and is facing from time to time particularly related to modernization of silkworm rearing methods. But direct as well as indirect involvement of more than 23,000 rearing families generating annual income of Rs 7.26 crores justifies its expansion and support on scientific lines (Annual plan 2008-2009, Planning and Development Department, Jammu).

There are about 173 mulberry nurseries spread over an area of 953 acres and about 667 acres of this area is cultivated for plantation of cuttings, seedlings, grafts which remain in the nursery for a period of one or two years and the annual plant producing capacity of these nurseries is about 19 lac mulberry plants which are distributed among the farmers for propagation of mulberry wealth. In addition to above there are 290 mulberry blocks spread over an area 917 acres which serve as mulberry leaf reserves for rearing silk worms by landless farmers. Sericulture depends primarily upon a temperate climate, density of population, soil, agrarian economy, cash returns from other agricultural and industrial pursuits and finally the social and religious susceptibilities of the people. Jammu and Kashmir state is eminently suited for growth of sericulture as well as these factors is effectively present here (Annual plan 2006-2007, Planning and Development Department, Srinagar).

Agrarian economy:

Agriculture is the main stay of the economy of J&K State. About 70-75% of the population in the state derives its livelihood from the agriculture directly or indirectly. The net area sown is 752 thousand hectares with a net irrigated area of 310.17 thousand hectares. Principal crops of the state are rice, maize and wheat. Under agriculture sector production level of 19-24 lac metric ton production of food grains was achieved in 2005-06. The fruit production (dry and fresh) reached 16.36 lac MT in 2007-08. Area under horticulture increased to 2.95 lac hectares around 6 lakh from families comprising 25-26 lakh souls are involved in this sector generating annual income of about Rs 2000 corers. Twenty three thousand hectares of land is covered under vegetable crops with an estimated production of 3.10 lac tones (Annual plan 2005-2006, Planning and Development Department, Srinagar).

For Sericulture Development in the state, 19.02 lac field and 114.55 lakh nursery plantation were done, 7.62 lac kgs of cocoons were produced generating an income of about Rs. 6.50 corers. 22907 OZS of silkworm seed were distributed, 930 OZS of P_1, 18218 OZS of F_1 seed was prepared, and 346 kgs of mulberry seed was also sown in 2005-06 while income generation to the farmers by way of sale of cocoons has increased to Rs. 726 lacs

Table 1: Sericulture in J&K at a glance (1980-1999)

Sr. No.	Sector/ item/particulars	Unit	1980-81	1985-86	1990-91	1995-96	1999-00
1.	Field plantation	000.No's	601.00	724	1668	2083	1402
2.	Seed produced	000.No's	24.80	24.75	27.33	21.07	17.00
3.	No. of Sericulture villages	000.No's	2.70	2.26	2.59	2.36	2.15
4.	No. of Sericulture households (cocoon-rearers)	000.No's	38.5	32.5	29.19	23.53	25.28
5.	Production of cocoons	000 qtls	6.65	6.42	7.00	6.66	8.25
6.	Production of Rawsilk	000 kgs	75.85	33.70	20.74	9.50	80.00
7.	Value of Rawsilk produced	Rs. 000 lac	234.98	291.28	155.35	140.16	960.00

Source: 1. Statistical Abstract, 2003-04, Government of J&K.
2. Annual Plan 2005-06 and 2006-07, Planning Department, J&K Government.

Table 2 : Sericulture in J&K at a glance (2001-2007)

Sr. No.	Sector/item/particulars	Unit	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
1.	Field plantation	Lac No's	13.57	15.27	17.50	16.00	19.02	22.36
2.	Nursery plantation	Lac No's	115.0	114.1	119.9	115.0	114.5	99.68
3.	Mulberry seed sown	Kg's	403	406	302	270	346	400
4.	Production of P_1 seed	OZS	1519	1110	1189	1300	930	1,000
5.	Production of F_1 seed	OZS	21,559	24,220	19,005	22,000	18,218	23,000
6.	Silkworm seed distributed	OZS	23,208	24,712	21,069	22,514	22,907	23,000
7.	No. of incubation centers	No's	618	617	607	603	608	640
8.	Production of cocoons	Lac Kg's	7.14	8.489	6.812	7.50	7.62	8.03
9.	No. of sericulture house holds (Cocoon rearers)	No's	20.429	23.138	19.066	22000	23000	21,044
10.	Production of mulberry raw silk	000 Kg's	37.000	30.410	87.180	17.74	-	-
11.	Value of raw silk produced	Rs 000 Lac	0.481	0.303	188.8	-	-	-

Source: 1. Digest of statistics 2003-04.
2. Annual plan-2005-06 & 2006-07, Planning Department J&K Government.

during 2006-2007. Double cropping has been started in the state on pilot basis and a record production of 18000 kg of cocoons has been harvested during 2006-2007 in addition to spring cocoon crop of 8.29 thousand quintals (Economic Survey, Directorate of Economics and Statistics, 2006-2007).

The cocoon production which was to the extent of 716 MT at the end of 9th plan (1997-02) has increased to 833 MT at the end of 10th plan (2002-07). The target for the year 2011-2012 of the 11th plan is 1200 MT. The target for the said production is 9.50 lac kgs for the year 2008-09 (Annual plan 2008-2009, Planning and Development Department, Jammu).

Before we take up the thrust areas and constraints faced by Kashmir sericulture and discuss the approaches needed to modernize every phase of silk production, we would like to emphasize why sericulture should be promoted and to indicate the economic potentiality of Kashmir sericulture in the overall set up of Kashmir agriculture and industry. Apart from its socio-historical and deep rooted traditional aspects, from a sheer planner's point of view, the need to strengthen sericulture on modern lines in Kashmir can not be over emphasized.

Employment generation:

The number of under-employed and unemployed is alarming. The total number of agriculture labourers is more than 2,46,421 in J&K state out of which 1,90,339 are male and 56,082 female. A Kashmiri casual agriculture worker has work on wages for about 3 to 4 months in a year and for the rest he is totally unemployed. These factors constitute the reason, the need and effort on the part of the farmer to look for a subsidiary occupation which would supplement his earning from the main occupation, agriculture. Sericulture helps to solve the problem of idle or surplus labour by providing partial or full employment to rural population. At present the net requirement of labour comes to about 4.43 lac man days by sericulture Development J&K state. It has greater implications for absorbing family labour which otherwise would remain unemployed or under employed. According to Ramana (1987) mulberry cultivation and silkworm rearing mainly employs household labour and silkworm rearing provides domestic occupation for ladies even in the upper agriculture

class which makes it a potential sector for income as well as employment generation. The total proposed employment generation by sericulture during 2006-07 in nursery operations is 2.86 (lac), establishment of mulberry blocks 0.40 (lac), cultural operations 0.73 (lac), incubation /chawki rearing 0.20 lac and seed production 0.34 (lac) (Fig. 2). Out of 4.43 lac man days generated in different operations 1.20 lac man days are generated by about 400 permanent employees, also utilized for conduct of these operations in sericulture (Annual plan 2006-2007, Planning and Development Department, Srinagar).

At present about 23,000 families are practicing sericulture in J&K state which mostly includes marginal and landless farmers. About 2.00 lac man days are generated annually in the on-farm activities which include rasing of mulberry plants in the Departmental nurseries. In the private sector about 1.20 lac man days are generated annually in reeling sector. Under supply of seed cocoon to west Bengal and Karnataka during the year 2008-09 from Jammu and Kashmir division, further employment generation is expected in this sector (Annual plan 2008-2009, Planning & Development Department, Jammu).

Competition from other crops:

The other economic factor which accounts in the development of Kashmir Sericulture is whether the job of silkworm rearing is profitable to the silkworm rarer/ farmer as compared to the relative returns available to him from other cash crops like paddy, maize, wheat, apple, cherry and pear etc. These aspects need a critical study. For instance in Karnataka, farmers take to sericulture because the economic returns offered by mulberry are in immediate cash and comparatively more than from those other agricultural or industrial pursuits. How far this factor is applicable to Kashmir is still to be decided but it seems that with an increase in production and improvement in quality of silk, sericulture can be profitably exploited as an ancillary occupation by the rear/farmer.

The question whether in the prevailing conditions in Kashmir sericulture is profitable to Kashmiri farmers/ rearers or not is important as the present returns from silk worm rearing are competitively very poor. Although the cocoon production has increased from 6.81 thousand quintals in 2003-04 (Digest of Statistics 2003-2004, Directorate of Economic and Statistics) to 8.29 thousand quintals in 2006-07 (Economic Review of Jammu & Kashmir 2006-2007). The average rate of "A"-Grade cocoon has also increased to about Rs 250 to 350 per kg (dry) against support prize of Rs 180 per kg and families associated with this trade have generated an income of about Rs 7.26 crores. Productivity of cocoons per ounce of seed reared increased from 25 to 34 kgs showing an increase of 36 % (Annual plan 2008-2009, Planning & Development Department, Jammu). However, the yield is termed as poor when it is related to the returns a farmer is able to get from a cash crop like apple alone. While as total fruit export is of the tune of Rs 1500 corers. With the change in the socio-economic condition in the state, this industry got a set back and most of the people shifted to more lucrative jobs like horticulture, small scale industries and other avenues of better earnings. This poor

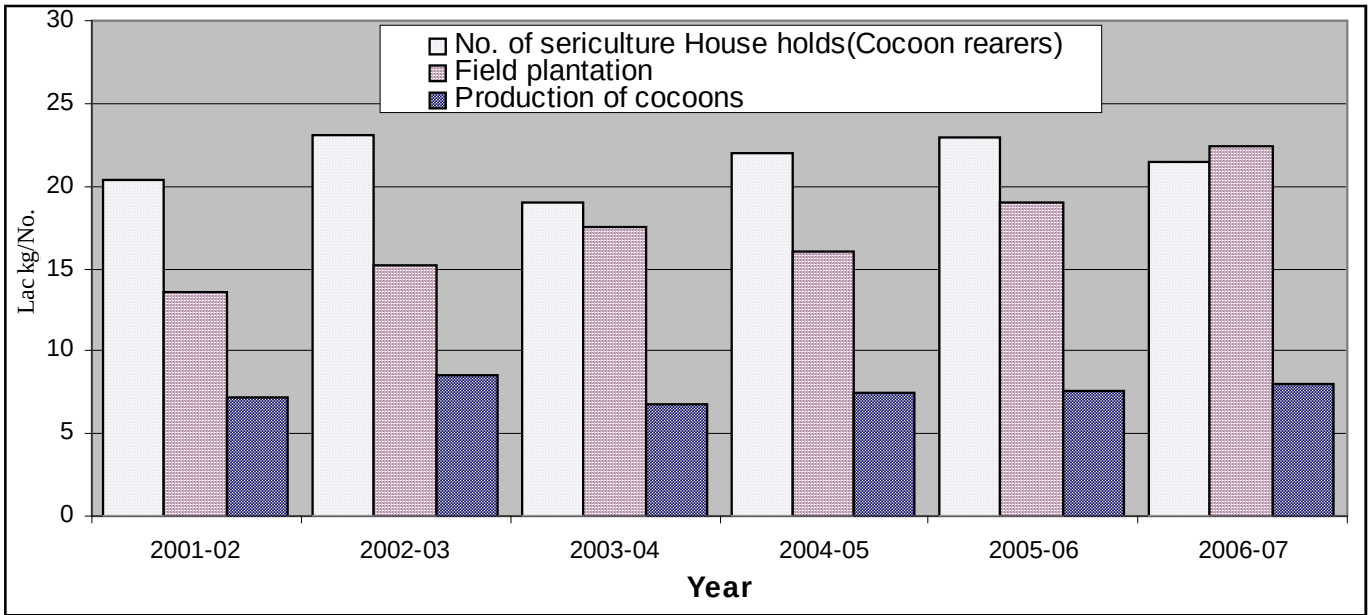

Fig. 1 : Year wise sericulture households, number of field plants and cocoon production

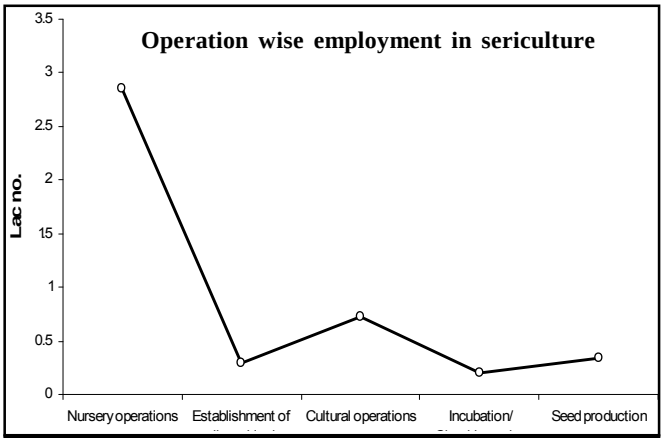

Fig. 2 : Sector/operation wise employment generation in sericulture

mans industry got a rude shock as the primary producer *i.e.* silkworm rearer who is the back bone of the sericulture industry did not find the rearing economical. But, in sericulture cocoon productivity high or low, supports many families and provides them with a livelihood that is not otherwise easily available in the places where they live and this is the reason for some rears' to continue with the rearing of silkworm in the state. Secondly, the government also raised the price of cocoons with improvement in reeling sector and this reserved the fogging interest of silkworm rearers with the result that the production shot up once again both qualitatively and quantitatively in the year 2007. From Table 1 and 2 "Sericulture in J&K at a glance" it is quit interesting to note that though the number of field plants has increased year after year but corresponding growth in number of sericulture house holds (silkworm rearers) and cocoon production is very less. Hence, it can be observed that in recent years (1980-2007) sericulture has not established itself to the extent it was expected.

Innate vitality:

Another economically important feature of Kashmir Sericulture is the inherent vitality of the industry. Kashmir sericulture has successfully emerged again and again through many a vicissitude. Within score of centuries sericulture has faltered and been crippled umpteen times, but never has it succumbed completely. It has always trudged its way successfully. This shows the inherent vitality of the industry. It has taken deep roots with in Kashmiri society and tradition, and what it needs is modernization in every phase.

Kashmir was once an important centre on the famous Silk Road and silk weaving was a flourishing trade. Despite higher prices and comparative inferior quality to that of international standard, Kashmir silk is much in demand abroad and with in India simply because of its traditional equisite design and intricate craftsmanship. This cultural aspect needs to be examined critically for a harmonious development of Kashmiri styles to have an impact on the international fashion.

Thrust areas:

– Evolving region and season specific breeds of silkworm with appropriate rearing and disease pest control packages.

– Selection of high yielding mulberry breeds with high input utilization efficiency.

– Promotion of mulberry and sericulture enterprise in hilly/border and backward areas.

– Increase in area under mulberry plantation.

– Encouragement, introduction and cultivation of high yielding varieties (diversification) promotion of area specific varieties (Zonalization)

– Extension education and trainings to up date the technical know-how of the Departmental officers/officials engaged in the development of sericulture in the state by organizing short term refresher courses and trainings with in and out side the state.

– Bringing more area under mulberry.

– To promote farmers participation in sericulture.

Constraints:

– In-adequate mulberry management practices at farmers level in relation to plant nutrition, disease and insect pest management.

– Small and marginal holdings with no fencing and irrigation facilities.

– Low leaf production from age old plants because of inferior genetic stock and non standardization of production techniques at farmer's level.

– Irrational prunings of the mulberry plants by the farmers/silkworm rearers which render them almost unproductive and hamper their growth.

– Mono-cropping.

– Lack of proper rearing accommodation for silkworms at farmer's level.

Approaches:

Sericulture being the oldest traditional industry of the state forms an important Agro-Industrial complex with a tremendous potential to improve the economic conditions of the rural population. Hence, a new approach for sericulture is necessary in view of the fact that as an important activity allied to agriculture, it strengthens the productivity base of agriculture economy and generates

employment opportunities in the state.

– Increase in area under mulberry cultivation, through plantation of improved cultivars with known performance.

– Re-plantation of old and un-productive mulberry blocks though new productive verities.

– Proper plant protection can play significant role in improving the productivity and quality of cocoons.

– Introduction of latest technology for propagation and cultivation.

– Development of region specific and cost effective sustainable farming techniques.

– Sufficient research focus in breeding to obtain gradable silk along with the development of suitable bivoltine silkworm races.

– Enhancing economic viability of reeling activity through effective utilization of bye-products released in reeling.

– Eco-friendly integrated pest/disease management both for mulberry and silkworm.

– Joint efforts by researchers, extension specialists and farmers to design, test and modify improved sericulture technologies appropriate for local conditions.

– Viewing sericulture as a holistic system in which all important interactions that affect its performance should be considered.

– Massive training on the basis of result demonstrations.

– Concentration of efforts on small and medium farmers who have greater chances of sustaining sericulture when compared to large farmers.

– Contribution of women in sericulture development needs to be recognized and a special drive should be under taken to upgrade their knowledge and skill in sericulture management.

– Maximize returns to the rearers in sericulture.

– To bring about quantifiable changes in the production and productivity of various components of sericulture by addressing them in a holistic manner.

– Training of farmers through farm field schools on silkworm and mulberry disease management practices etc. Printing of literature/ other awareness programme.

– Assistance to Seri-enterprisers / Seri-graduates to setup Seri-clinics/ Seri-business centers.

– Study tours of silkworm rearers to places of interest to them, especially to research institutions etc.

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