Chapter-1

*General Introduction*
Chapter 1

INTRODUCTION

Sericulture is an agro based labour intensive industry which yields high returns with low initial investment. Sericulture is better switched to drought prone areas like Rayalaseema region. Rayalaseema is one among the recurrently drought hit areas in India and sericulture suitably finds its place here. The average net income per one acre of mulberry cultivation and silk worm rearing ranges from Rs. 2000 to Rs. 25000 per annum. Sericulture provides lot of employment in rural areas of Rayalaseema region of Andhra Pradesh. One acre of mulberry provides employment to 5 persons both direct and indirect means throughout the year.

Originally the Sericulture industry was one of the branches in industries department and subsequently it was brought under Handlooms & Textiles Department as one of the wings. Andhra Pradesh was a mere speck on the sericulture map of India, producing only around 3000 tonnes of mulberry silk cocoons in 1975. The Sericulture industry grew with leaps and bounds and by the year 1981 AP, could produce around 7000 metric tonnes of cocoons. In view of enormous growth of the industry, Sericulture was separated from Handlooms & Textiles and a separate department of Sericulture was formed in the year 1981 with a senior IAS officer as the Director of Sericulture.
Table 1.1. The area under mulberry cultivation and the Production of raw silk in Andhra Pradesh is as below

<table>
<thead>
<tr>
<th>S.No</th>
<th>Year</th>
<th>Area in Hectares</th>
<th>Cocoon Production in Tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1997-1998</td>
<td>38,546</td>
<td>24,809</td>
</tr>
<tr>
<td>2.</td>
<td>1998-1999</td>
<td>42,827</td>
<td>30,179</td>
</tr>
<tr>
<td>3.</td>
<td>1999-2000</td>
<td>45,165</td>
<td>34,193</td>
</tr>
<tr>
<td>4.</td>
<td>2000-2001</td>
<td>48,164</td>
<td>38,429</td>
</tr>
<tr>
<td>5.</td>
<td>2001-2002</td>
<td>49,423</td>
<td>39,986</td>
</tr>
<tr>
<td>6.</td>
<td>2002-2003</td>
<td>54,384</td>
<td>50,664</td>
</tr>
</tbody>
</table>

Source: Commissioner of Sericulture, Andhra Pradesh, Hyderabad.

The above table 1.1 shows the profile of the growth of the industry in the State. This phenomenal development has been possible because of the State Government’s decision to form a separate Department of Sericulture in the year 1981, and subsequently, the department’s strategy of promoting sericulture development as a poverty alleviation programme through integrated action by various departments. Apart from separation the department of sericulture was formed, the Department of Rural Development was roped in to fund the major portion of the infrastructure needed to sustain this industry in the State through the Drought Prone Areas Programme and the Integrated Rural Development Programme. In addition to infrastructure support subsidy for coverage of small and marginal farmers and weaker sections was also made available from these programmes to promote credit flow to this sector. The persons involved in this industry are mostly small and marginal farmers and economically weaker sections of society. Another notable feature of the industry is that 60% of its working force comprises women. Today AP is the second largest producer of cocoons in the country, with an annual production of 24,809 metric tonnes and providing employment to approximately 4.76 lakh persons.

In view of the near instantaneous and visible impact of these programmes, from the year 1983-84 the Departments of Social Welfare and Tribal Welfare also stepped in, treating sericulture as a major scheme for the economic uplift of SCs and STs. In subsequent years, other Departments viz., Panchayat Raj, Revenue,
Agriculture and forest, have also played a supporting role. In addition to the External Aided Projects, such as World Bank aided National Sericulture Project and Swiss Development Mission have also contributed greatly for the department of Sericulture Industry in the State. Andhra Pradesh has the privilege of producing another type of silk called Tasar silk apart from mulberry, which is locally called as dasali pattu. Tasar is produced mainly by the tribal who take the laying and rear them on the trees of Terminalia plantation. Tasar is concentrated mainly in the districts of Telangana i.e., Adilabad, Karimnagar, Warangal and Khammam and in few pockets of north coastal region of East Godavari and Visakhapatnam. Tasar crop is raised thrice in a year. First and Second crops are seed crops whereas third crop is a commercial crop.

Due to research efforts both by the State Departments of Sericulture and the Central Silk Board have been improvements in the yield of mulberry. New varieties have also been evolved. The Kanva-2 variety is a selection and gives leaf yield of 35 tonnes per ha./year under irrigated conditions. The traditional local varieties of mulberry under irrigated conditions give only 20 to 25 tonnes/ha./year. Since recently, new varieties of high yielding mulberries are under trial and two of them namely, V₁, S-36 and S-54, S-30 and S₁₃ give as much as 40 to 45 tonnes of leaf/ha./year.

The sericulture industry comprises on two sectors (1) on-farm sector and (2) non-farm sector. Mulberry cultivation, silkworm rearing and cocoon production is covered under on-farm sector and the post cocoon technology, i.e., silk reeling, twisting, dyeing, weaving, printing and processing etc., is covered by non-farm sector. In most of the attributes both under on farm and non-farm sector women are involved upto 80%.

The bulk of cocoons produced is from the new multivoltine x bivoltine hybrid which have a filament length of about 600 to 800 metres and a shell ratio up to 17% and a single cocoon weight of about 2 grams. Most of the farmers who grow mulberry also rear silkworms. In a few cases, the mulberry grower sells leaf to the rearer. Similarly, in a few cases persons with no mulberry garden of their own, rear silkworms by buying leaf from others, though such cases are rear. Invariably, the
farmer rears silk worms in his house and sometimes in a separate rearing room or rearing house. Bamboo trays and stands are used for rearing and simple instruments like knife are used for chopping the leaves. In most cases, the farmer rears silkworms after buying the eggs either from the Government grainages or from the private licensed seed preparers.

The farmer usually buys the silkworm eggs from either a Government grainage or from private licensed seed preparers. In India, silkworm eggs are not sold in standardised boxes of 11.5 grams or about 20,000 grams are advanced Sericulture countries. Here the eggs are laid by silkworm moths on an farmer buys 50 to 200 layings at a time. As one moth normally lays about 400 eggs for 100 layings there will be about 40,000 eggs. These are also called “DFLs” i.e. “disease-free layings” since the eggs sheets are examined and treated against diseases and only the disease-free layings on the egg sheets are sold. Hence, the unit of yield calculation for cocoons is kilograms of cocoons per 100 DFLs. For the multivoltine x bivoltine hybrids, the average yield irrigated conditions in 30 to 35 Kgs per 100 DFLs. though there are progressive farmers who get up to 70 Kgs of cocoons per 100 DFLs. The yield in Japan is about 35 Kgs per box of 20000 grains of 11.5 grams weight. Hence, the average in Southern States of India is about half Japan in terms of cocoons from silkworm and also due to high mortality of silkworms during the rearing period.

Silk Reeling

Silk reeling is a cottage industry in India. The un-winding of the silk filament and combining a number of filaments in to one yarn is called “reeling”. However, only the mulberry cocoon has a continuous silk filament and reeling is done only for mulberry cocoons. In the case of non-mulberry cocoons, due to the absence of continuous filament, hardness of shell etc., the yarn is usually spun. The composition of a mulberry cocoons shell is given below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Fibroin</td>
<td>72 %</td>
</tr>
<tr>
<td>Sericin</td>
<td>19-28 %</td>
</tr>
<tr>
<td>Fat and Wax</td>
<td>0.5-1%</td>
</tr>
<tr>
<td>Colouring matter and ash</td>
<td>1-1 %</td>
</tr>
</tbody>
</table>
The cocoons are sold by the farmers in the Southern region invariably as fresh cocoons and the reelers stifle them (that is, kill the pupae) by steaming. In other parts of India like Kashmir, sun-drying of cocoons to kill and dry the pupae is still practiced. India has a variety of reeling equipments but most of them fall into 3 categories namely, charkhas, cottage basins and filatures. The country charkha is a hand operated reeling machine used in the house of the reeler. It is built with material available locally in the village, by the carpenter and blacksmith. It has a platform in which there is a basin for boiling the cocoons. After boiling the cocoons, the filament ends are identified and reed through an eccentric wheel. The reeler sits upon the platform, facing the basin and reel. This is the most primitive method of reeling and about 50% of the raw silk in India is reeled on such country charkha. In West Bengal, the country charkha is known as “Ghai”. After the second world war, the cottage basin reeling machine was developed on the pattern of Japanese multi-end machine. The cottage basin has small reels over head and separate equipment for re-reeling. Basically, the cottage basin consists of three separate parts namely, the cooking unit, the reel bench and the reel box. Each filature with 2400 ends imported from South Korea and Japan has been installed in Karnataka. Another similar filature is being installed in the private sector in Andhra Pradesh. About 50% of the total mulberry silk is produced on 22000 charkhas, 40% on 7000 cottage basins and 10% of the total mulberry silk in India.

Productivity of charkhas and basins is low both quantitatively and qualitatively. Because of the lesser filament length and lower reelability, the renditta is 9 to 11. The word ‘renditta’ means, the number of kilograms of fresh cocoons required to render one kilogram of raw silk. Thus in India, 9 kgs of the comparatively better quality of fresh cocoons results in one kg of raw silk when it is reeled on charkhas or cottage basins or multi-end reeling machines. In the case of Japan, only 5kgs of cocoons are required to produce 1 kg of raw silk. However, the quality of cocoons available in India, especially in southern States has improved as is evident from the fact that about 15 years ago more than 13 kgs of cocoons were required to produce 1 kgs of raw silk in the same equipment. It has now come down to 9 and in some cases to 8 also. Due to the decentralised and dispersed nature of silk reeling, for a number of years to come the primitive charkha system will continue before gradually giving way to cottage basins and multi-end reeling machines. The transition will be
slow because, the lower quality of cocoons can be reeled only on the charkhas without much wastage. However, the quality of the charkha reeled raw silk is poorer compared to the cottage basin and multi-end reeling machines. Since charkha will continue for some more years, the Central Silk Board has made certain improvements in the charkha reeling design. This improved charkha will enable the reeler to get a higher quality of raw silk from the same king of coons as compared to the traditional charkha. However, cottage basins have come to occupy about 40% of reeling. Similarly, the improved machines namely, the automatic and the multi-end reeling machines with individual brake devices will continue to take a larger share in the reeling machinery, though slowly.

**Silk throwing**

Raw silk is invariably twisted in small factories except the raw silk produced in Kashmir and parts of West Bengal. Twisted yarn is used in both handlooms and powerlooms. There are about 2 lakh spindles for twisting in India. This is highly labour-intensive.

**Silk weaving**

Indian silk is essentially woven on handlooms. About 65% of the Indian silk is woven on handlooms and 30% on traditional powerlooms. The powerlooms are also organised on a small scale, cottage industry pattern. The modern silk weaving factories having better handlooms may account for about 5% of the silk productions. There are about 182000 silk handlooms and 31000 silk powerlooms in India.

There is one notable characteristic in handlooms. The inferior quality silk reeled on charkha reeling machines are suited to the slow speed of handlooms and technique of manual controls of the weavers. The better quality of coons reeled in cottage basins and multi-end reeling machines resulting in better quality of raw silk is used in power looms. However, the handloom fabrics in India, inspite of their defects, are known for their texture, colours and designs. Most of the silk handlooms are under the control of master weavers who supply silk yarn to the actual weavers and make payment on a piece rate basis.
Review of Literature

Review of Some of the important studies which are directly or indirectly related to the present study, provides insights into the significance of marketing administration, organization, marketing system, the problems and prospects of rearers in selling cocoons in market.

Sericulture is having high employment potential in Rayalaseema districts of Andhra Pradesh (Narayana and Lakshminarayana 1979). They estimated that the gross returns per acre from sericulture was 2.5 times more than that of competing crops like sugarcane. Chandra Reddy (1986) found that the economic analysis of sericulture activities necessitate proper valuation of estimation of inputs and outputs. Sarangi R.N. (1992) worked on “Studies on Commercial Cocoon Marketing System in Karnataka”. The author studied about the working of “Silkworm Cocoon regulated markets in Karnataka State”. The study deals with the working of the regulated cocoon markets in the State of Karnataka. Lipton (1975) said that marketing is a case where rural deprivation is less due to intra-rural exploitation than to urban priorities and rural neglect. The sericultural markets are operating at the gross-root level. A majority of participants in these cocoon markets belong to the category of marginal and small farmers who belongs to lower-strata of rural community (Jha Mitheleshwar, 1981). Sudhir Wanamali (1981) studied the relationship between the distribution of population and the emergence of a system of periodic markets. Krishna Murthy (1980) made a study on restructuring of market boundaries in the State of Karnataka. The author recommended the hexagonal type of boundaries of the wholesale rural markets suggesting that 108 regulated markets for the state would suffice. Kang Hyun (1979) suggested a thorough structural change in respect of marketing of food grains, fruits and vegetables and livestock. This study highlighted the problems in marketing of the above crops/categories of crops, and suggested that a plan comprising a price stabilization programme both in the short and long term. According to Subba Rao (1983), the relative profitability of a farmer, selling his produce in a rural market is higher as compared to that of his selling the same produce at a regulated market. Kamal Nayan Kosra (1983) in his study concluded that the size and class-bias are higher towards small and marginal farmers leading to scale disadvantage.
The present cocoon price has to be modified based on pricing in international market. The XII International Silk Congress (1973) held at Barcelona, Spain had observed with great concern that the fluctuation and excessive price rises threatened the future of silk industry and shall drive buyers from silk to man made fibres. Verma S.C. (1981) described noticeable recent trends in Agricultural marketing. The study which covers the trends for the entire country more in pre-marketing, post-harvest operational charges, provision of facilities, services at markets, transportation facilities made available at the markets, problems in the marketing of fruits and vegetables. Balwinder Singh (1981) has made a study on impact of focal points thus the farmers who sold their produce at these focal points have opined that it reduced the transportation cost and saved time. This is more so in case of small and marginal farmers. Agarwal (1986) pointed out but also wanted to purchase their necessities at cheaper prices at market centres. Pandey et.al (1989) observed that price spread and marketing efficiency in their study on “Marketing of Tasar Silk Cocoon in Bihar” one of the important findings of the study is that the Commission agents are dominating in the trade transactions. Further, they identified that marketing efficiency was largely affected by the middleman’s malpractices.

Number of studies reported positive relationship between education of farmers and their knowledge (Sunder Raj, 1978, Ravindra, 1980. Sinha 1981, Geeta Kutty (1982), Wilson and Gallup (1955) indicated that farmers in the middle age group adopted more number of practices. In contrary to those findings, Prakash Kumar (1986) revealed that a new significant association between farmers age and their adoption behaviour with respect to sericultural practices. Sahu and Panda (1995) revealed that rural market has grown in size, range and sophistication in the current years. The same offers a big opportunity in the current years. The same offers a big opportunity and attractions to Indian consumers. Marketers in rural India are confronted with many challenges such as scattered location of villages, low occurrence of retail outlets, problem of marketing communication and erratic transport etc. These areas have to be improved to meet the challenges like syndicated
advertising, promotion according to regional variation, suitable local promotional activities, improvement in rural transport, warehousing and storage are some of the strategic intervention. Venkata Giriappa (1986) investigated on the markets of shifting grading and marketing of mulberry silkworm cocoons. He reported that several problems such as inadequate storage facilities, dissatisfaction of weighment by rearas, unsatisfactory prices high hamali charges, problem of later payments, not satisfied accession systems by the respondents Karnataka is a pioneer state in establishing cocoon markets for sericultural activities (Shivananda 1987).

From the above discussion on review of literature, it is observed that though major issues may be found for developing regulated cocoon markets may not be applicable to the working in the drought-prone area of Rayalaseema region. With this background a study was made on the physical, socio-economic conditions of reasons, working of cocoon marketing system and organization and administrative aspects of regulated cocoon markets in Rayalaseema region.

Statement of the Problem

In spite of lot of efforts made by the Government, there are certain constraints which hinder the growth and development of sericulture in Rayalaseema region. The sericultural marketing suffered from well known and accepted short comings and inadequacies. The Government of Andhra Pradesh has taken concerted efforts to bring about an all-round development in the sericultural cocoon marketing. One of its actions was the establishment of regulated cocoon markets under State legislation. The regulated cocoon market is the most important institution in the field of orderly marketing of silkworm cocoons. The regulated cocoon market is not only a place where certain legal conditions are enforced, it is also a centre which provides a package of facilities to sericultural cocoon marketing and economic centre where adequate demand is built up for the sale of silkworm cocoons which will bring satisfactory return to rearer. It would be possible to develop the regulated cocoon markets not only for marketing the silkworm cocoons but also for providing numerous facilities to meet the demands of rearers through the supply of fertilizers, pesticides, mulberry cuttings, silkworm layings and sericulture machineries.
Purpose of the study

In view of the above, the researcher aimed to study the efficacy of regulated cocoon markets in Rayalaseema to provide an insight into the profile of rearers and reelers socio-economic conditions and economical, organisational, administrative and working of regulated cocoon markets in Rayalaseema regions.

Objectives of the study

The specific objectives of the study are seven fold in character: They are

1. To examine the geographical characteristics of the surroundings of different cocoon markets.
2. To present the socio-economic characteristics of the study respondents,
3. To study the Policy, Institutional, Technological constraints and solutions to cocoon marketing efficiency
4. To present the growth and development of cocoon marketing system in Andhra Pradesh with reference to Rayalaseema.
5. To study the pattern of arrivals and prices of silkworm cocoons in different markets of Rayalaseema region.
6. To assess the needs of rearers and reelers related to better marketing facilities.
7. To suggest suitable measures in the light of findings of the study for ensuring effective and meaningful cocoon marketing system.

Significance of the study:

The present study is important in assessing whether the benefits derived by rearers and reelers from sericulture are in commensurate with their contribution or otherwise. The study assumes an added significance since it would throw light on the extent to which the cocoon market promoted rearers and reelers interests as a whole. Further, the study would be useful in formulating appropriate policies for the promotion of active participation of rearers and reelers in cocoon marketing development and at the same time ensuring maximum gains for the rearers and reelers. Finally, the study would be helpful to fill the research gap in the field of sericulture extension and management to some extent.
Scheme of presentation

The study is divided into seven chapters including first chapter, which is introductory in nature and presents the importance of sericulture development, need and importance of the cocoon market.

The second chapter "Methodology" deals with the formulation of questionnaires for rearers, reelers and marketing officers and also the use of appropriate statistical methods.

Chapter III "Physical and Socio-economic Profile of Rayalaseema" - contains the geographical particulars and the historical background of the Rayalaseema Region. It also explains the detailed profiles of the places where the cocoon markets are located and socio-economic conditions of the region.

Chapter IV "Organization structure of Rayalaseema Cocoon Markets" examines the principles that govern an organization and the allotment of functions to the individuals, the coordination of these functions by officials or heads of sections, the planning of activities and so on. Further variance between policy and practice has also been discussed.

Chapter V "Administrative structure of Rayalaseema Cocoon Markets" examines the marketing administration. It in fact, is the dynamic side of marketing, which deals the marketing objectives and principles.

Chapter VI, "Working of Cocoon Markets System in Rayalaseema" gives a brief description of Cocoon markets position in Rayalaseema Region" with special reference to financial position and marketing performance in the light of changing scenario.

Chapter VII is the “Perceptions of Rearers and Reelers” which is an important aspect to defend the performance of the cocoon markets.