Chapter-1

Introduction

Introduction

1.1. *Background:*

Sericulture also known as "Industry of the Poor" is an agro-based industry, the end product of which is silk, "the queen of fabrics". There are four major varieties of silk, each of which is produced by a distinct variety of silkworm feeding on a specific host plant. Table-1.1 shows the names of silk varieties with the corresponding silkworm and the main host plants on which they are grown.

Table–1.1
Types of Silk and Its Respective Host Plants

Variety of Silk	Name of Silkworm	Main Host Plant/Plants
Mulberry Silk	Mulberry Silkworm	Mulberry
Tasar Silk	Tasar Silkworm, Oak Tasar Silkworm	Asan, Arjun, Oak
Muga Silk	Muga Silkworm	Som, Soalu
Eri, Endi, or Errandi Silk	Eri Silkworm	Castor, Kesseru

India has the unique distinction of producing all the four major varieties of silk. The country is the second largest producer of mulberry and tasar silk in the World. The most important point to note is that India enjoys the sole monopoly in the production of golden coloured muga silk and eri silk of Assam (Ullal and Narasimhannan, 1994). Among the chief eri cocoon growing areas in India are entire Assam, north Tripura, west Manipur, Meghalaya, Arunachal Pradesh, Muzaffarpur, Bhagalpur and Purnia in Bihar, Cooch Behar and Jalpaiguri in West Bengal and some parts of Gujarat and Andhra Pradesh.

Eri silk, originated from a proteinous fibre secretion of a lepidopteron insect (scientifically known as *Samia ricini*) is one of the popular natural fibres of animal origin. It has a unique appearance and aesthetic appeal. Eri silk has wool like finish, look of cotton and softness of silk, yet has no dazzle and rustling sound that is

associated with the other varieties of silk. It is highly durable and has a specific thermal property, which renders it as an alternate fibre to wool. It is regarded as an ideal fabric for cold season (Singh and Benchamin, 2001).

Eri fabric is called "Poor man's Silk" because it is much cheaper than muga and mulberry silk. So, it can appeal to a wide range of population. It is also known as "Ahimsa silk", because eri pupae are not killed in the process; whereas, in rearing of muga, tasar and mulberry raw silk cocoon splitting process is followed and killing of cocoon is a must for the harvesting (Thangavelu and Borah 1986).

Like other sericulture activities, the ericulture activities can be distinctly separated into two parts. One is ericulture proper and the other is eri silk industry or eri silk weaving. The first part consists of rearing of worm; which feeds on the foliage of castor (Eranda or Endi in Assamese). The silkworm too is therefore known as eri silkworm. The eri worm is multi-voltine and can be reared indoors. Maximum six broods can be harvested in succession in a year, if sufficient food leaves are available. The temperature between 24^0 to 28^0 Celsius and humidity between 85 to 90 per cent are ideal for the rearing of eri silkworm.

Castor is the primary food plant of eri worms. Castor is either cultivated or it is wildly grown. The castor plant can be cultivated in diverse climates and on poor sandy as well as rich ålluvial soils. In the hilly areas (as is seen in Karbi Anglong and North Cachar Hill district of Assam) where jhum cultivation is practised, castor is sown along with other crops. In the plains, the plant is found growing in patches of unoccupied land around the rearers' homestead or in the road sides. Those who cultivate host plant collect leaves from it and those who do not cultivate collect leaves moving around different places where it is grown wild. In the absence of castor, kesseru leaves are also used. However, if kesseru is used as food-leaves of the silkworms, when castor

becomes available the worms can easily be shifted from kesseru to castor leaves but those feed on castor earlier cannot be readily shifted to kesseru at the time of scarcity of castor. Worms fed on kesseru leaves are said to produce smaller but more compact cocoons than those fed on castor leaves. *Barkesseru, Bhotera, Payam, Champa, Simolu Alu, Gomari, Papaya* etc are the other secondary host plants for ericulture.

1.2. *Mode of Harvesting Activities:*

The life cycle of eri silkworm has four stages- eggs (*koni*), larva (*polu*), pupae (*leta*) encaged in a cocoon and adult moth. A complete life cycle lasts for about 44 days in summer and 85 days in winter. The cocoons, which are preserved for breeding purpose, are kept in a bamboo basket (*kharahi*). Emergence of moths requires 15 to 17 days in the summer and maximum of 21 days during winter season. After emergence, moths crawl on to the edges of the receptacle and rest hanging from the outer edges in a vertical position till wings and limbs are fully stretched and strengthened. Generally, the moths flutter their wings just before dusk, the males then fly around for sometime and pair with females. Eri moths have very good coupling attitude. Maximum pairing takes place at 16.00 to 18.00 hours in the afternoon and the moths may remain coupled for 24 hours, although 3 to 6 hours are adequate. The male moth can be utilised for a second coupling. The sexes of the moths may be distinguished easily by the large size of abdomen of the female and the tapering of the male. The decoupled fertilised females are left on a straw stick (*kharikas*). The fertilised females start yielding eggs after 01 to 02 hours and that continue for 03 to 04 days. On an average, one moth lays 450 to 500 eggs and mostly on the very first day (F.A.O., 1987).

The cluster of eggs on the *kharika* is collected and wrapped in a piece of cloth. The eggs are then preserved in a safe place till hatching. The minimum number of days

required from the day of oviposition to the day of hatching is about nine. It may be extended to a maximum fifteen days depending on climatic temperature. The worms hatch out, usually in the morning. At this infancy stage of larvae, they are placed on the rearing bamboo trays (*Dola*). Soft leaves of castor or kesseru are given to them to eat. At first stage, the larvae are greenish yellow. The body colour changes gradually to pure yellow by the end of the third day. From the third day onwards, the body colour changes into cream, green, blue or white. The eri silkworms feed ceaselessly except during shedding their skins. In the entire larval period, worms moults four times. This state may lasts for 24 to 48 hours. The larvae are supplied with fresh leaves four to five times in a day at a regular interval till the last stage is attained. It is also necessary to give them leaves once at night. In advanced stage to maturity, they eat voraciously. At this stage they are given only matured leaves. At that time, they are transferred to bunch of leaves tied together by the stalks (*Joka*) and hung saddle-wise on horizontal bamboo poles (*Dang*). An experienced ericulturist never provides wet, dirty, dusty, worn-out, diseased, fried or ripe yellow leaves to the worms due to the fear of silkworm being affected by any disease and thereby resulting in productivity loss. On attaining maturity, the worms stop to eat and crawl up to the top of bundles. They produce a hollow sound when it is rubbed gently between fingers. The mature worm ripens mostly during morning hours between 9.00 A.M. to noon.

The next step is spinning. The matured and ripe worms are transferred to "*Jalis*" for spinning cocoons. The bamboo basket (*Pachi*) used for spinning cocoons are filled with dry leaves of mango, jackfruits etc. The worms begin to spin as soon as they are placed on *Jali* and completed cocooning within 3 to 6 days and transform into a pupae. The cocoons are soft, woolly and open mouthed. The quality of the cocoons greatly depends on the quality of food plants. Various eri food plants, in order of

efficacy are castor, kesseru and tapioca. As there is also the seasonal effect, the cocoons produced in late spring and in late autumn are the best. They look like either brick red or creamy white. During the entire rearing period proper care is taken to protect the worms from the attacks of flies, rats, monkeys etc and probable diseases. Moreover, cleaning of bed is also equally important for the maintenance of health and progress of the worms.

The important rearing appliances are made of locally available bamboo and cane. The rearing house should be ideally located and should have veranda on all the four sides and adequate number of doors, windows and ventilators to ensure cross circulation of air and good light. But in most cases, for rearing the poor and small entrepreneurs use a portion of their dwelling houses.

Most of the rearers sell eri cocoons to the middlemen traders called "*Dallal*" and some in the weekly market called "*Hat Bazar*" in kilogram. Sometime cocoons are sold to the government officials (Cocoon Marketing Inspector) of sericulture department also. However, a part of produced cocoon is also used by the rearers themselves for spinning and weaving at home.

The open-mouthed eri cocoon is spun like cotton. The eri moth emerges without disturbing the cocoon and its fibre. Hence, all cocoons can be utilised for spinning after proper cleaning. Most rearers stifle the cocoons, unless they are to be preserved for breeding purpose. Cocoons are stifled by exposure to sun for few days. This method helps to preserve the cocoons longer and also to avoid the discolouration of cocoons, which happens in case of stifling by fire. The staple of eri cocoon obtained from first draft operation is glossy, long and fine. Nothing is wasted in eri cocoon by spinning. The yarn spun out of cocoon is regular and fine, if the spinning is done with a little care.

Prior to spinning, eri cocoons are required to be de-gummed in an alkaline solution. For preparation of the solution, an indigenous process is extensively used. Ashes of certain leaves or straw are used for the preparation of such solution. The quantity of alkaline ash required is half the weight of the cocoon used. Boiling for two or three hours in an alkaline solution is sufficient for de-gumming and the fibre comes off easily when pulled.

The boiled eri cocoons are wrapped in a green arum or plantain leaf for 3 to 4 days. The process loosens the inner content of the cocoon. The well-treated cocoons are thoroughly washed in water and the inner dirt, if any, is removed. The flattened cocoons in the form of cakes are then dried and preserved for spinning at a suitable time (Choudhury, 1982).

In the spinning process, generally traditional devices like *Takli* and Charka (*Zatar*) are used. Spinning by *Takli* is very slow and tedious. But the expert spinner prefers to use *Takli* because the yarns can be twisted satisfactorily. Modern spinning equipments like N.R. Das type, Choudhury type, Central Silk Technological Research Institute (CSTRI) pedal operated (old model) spinning machines as well as CSTRI motor cum pedal operated etc are also available in the market. The CSTRI motor cum pedal operated spinning machine is the most efficient one. But they have not gained popularity in rural areas because of technical and financial constraints. On an average, one can get 50 grams yarn in 08 hours by using *Takli* whereas, one can have 200-250 grams yarn by using CSTRI motor cum pedal operated machine during the same period (Kariyappa, *et al*, 2003). On an average, one kilogram of cut cocoons yields about 750 grams of fine yarn. After the completion of spinning, weaving starts.

Eri yarn is full of loose fibres sticking out of the thread. The yarn, which is to form the wrap, has to be sized in order to bind all floating and loose fibres into the body

of the thread and also to strengthen the thread. Badly spun thread requires more sizing. Sizing required for weft is much less than warp yarn.

Starch made into gruel or some mucilaginous substance is used for sizing of eri yarn. The application is done by a brush to the warp of the loom. Very often an additional sizing is applied to the cloth after it is taken out of the loom. This is necessary in case of inferior variety of cloth. Thus the inner spaces between the threads are filled up to give the cloth a smooth and fine appearance. The cloth is washed and stretched fully (Choudhury, *op cit*).

In Assam, usually throw shuttle loom is used for the weaving of eri fabric. The loom is hung freely from upright bamboo poles. Sometimes, a wooden frame is also used. The shuttle is thrown with hand from side to side and beating is done by pulling slay with hands. However, productivity of throw shuttle is lesser than that of fly shuttle or power loom. The productivity of fly shuttle loom is two and half times higher than that of throw shuttle loom. Moreover, productivity of power loom is six to eight times higher than that of fly shuttle (Choudhury, *op cit*). But use of power loom is very much limited in Assam because of financial and technical problems. Weavers prefer yarn produced by *Takli* due to its appropriate twists and uniformity. However, sometimes weft yarn prepared by spinning wheel is also used by the weavers.

Eri weavers of Assam prepare a special type of shawl for both male and female suitable in winter. The average size of a shawl used by male in Assam is 2.75 metres of length and 1.35 metres of width. Similarly, the average size of a shawl used by female in Assam is 2 metres of length and 1 metre of wide. An expert weaver can prepare one male shawl in one day (8 hours) whereas she can weave two ladies shawl during the same period of time.

1.3 *Present Position of World Silk Production*

In the global textile parlance the term "silk" refers to the silk of mulberry origin, as almost 95 per cent of the world total silk production consists of mulberry silk (Ullal and Narasimhana, 1986). Basically, silk industry has been an industry of the temperate region and as such, it was mainly localised in Japan, China, South Korea and former Russia. These countries produced 78.78 per cent of the total world silk production during 1990. India is the only major silk producing country in the tropical belt contributing 15.76 per cent to the global output of silk (1990).

The technique of mulberry host plant cultivation, the method of mulberry silkworm rearing and the art of silk reeling and weaving originated in China nearly 3000 years back during the period of Emperor Hwang-Ti. All the operation including silk weaving was kept a secret and China monopolised the silk trade for nearly 2000 years. The path through which silk fabric from China reached Europe especially Rome was known as the "Silk Road". The technique of sericulture finally found its value to other countries through smuggling, through artisans captured prisoners of war, through monks and various other ways. At present, 58 countries all over the world are engaged in various sericulture activities. But, China maintains its glorious first position in the raw silk production, while India superseded Japan in this regard and occupies prestigious 2nd position in 1987. The other three top raw silk producing countries in the world are former Russia, Japan and Brazil.

The total production of raw silk in the world has been steadily increasing in spite of an increase in man-made synthetic fibres. Due to the texture, lustre, quality, comfort, adaptability to all climatic conditions and ability to take up dyes natural silk occupies a special position among all the textile materials. Table-1.2 shows over time changes in the production of silk in some major silk producing countries in the world.

From table-1.2, it is clear that raw silk production in China and India has increased by several times during 1938 to 1992. Japan, which stood first among all the countries in the silk production up to 1978 lost its position due to continuous fall in the production of silk and stood 3rd in the ranking in 1992. Though both India and China recorded faster growth in the production of silk, the gap between the production of India and China widened due to relatively faster growth in China than in India and now India's silk production is about ¼th of China.

Table-1.2
Over Time Changes in the Production of Silk in the Major Silk Producing Countries in the World (M.T.)

Country	1938	1978	1987	1992
China	4855	19,000	35,800	54500
India	690	3473	8455	13000
Japan	43150	15957	7864	5085
Russia	1900	3200	4000	4000
South Korea	1825	4235	1608	1200
Brazil	35	930	1780	2373
Thailand	----	----	----	1700
***Others**	4045	1905	2874	2210
Total	56,500	48,700	62,381	84,068

Source: *Silk Review*, various issues
Note: *Estimated figure.

The productivity of food leaves and thus raw silk per unit of area in China is very high as compared to India and thus cost of production in China is the lowest among all the silk producing countries. This is mainly due to the extensive use of organic manure and irrigation to the mulberry fields by the Chinese rearers. Moreover, highly productive silkworm races suitable to specific region across all the seasons are available to the rearers of China and scientific measures have also been adopted by majority of the producers during silkworm rearing to prevent diseases as they take up silk production as their primary occupation unlike the major producers of Assam (Dandin, 1994). Since 1938, rapid growth of population in China on the one hand and lack of job opportunities in rural areas on the other hand forced people to adopt

sericulture as their means of livelihood. The same case has also been observed in many places of India.

There has been a tremendous fall in production of silk in Japan during 1938 to 1992 specifically in Kinki, Kyushu, Shikoku, Chukoku and Tokai regions (Aruga, 1990). The drastic decline after the 2nd World War is attributed to the severe shortage of food supply in Japan and hence many of the silk rearers switched over to the cultivation of food crops. Besides, the advent of nylon and other synthetic as well as many chemical fibres also caused decline in raw silk production there (Aruga, *op. cit.*). In recent past, two tropical countries, viz. Brazil and Vietnam recorded significant increase in the production of raw silk. Interestingly, the entire quantity of silk produced in Brazil and Vietnam is of superior quality (bi-voltine) and thus they are now able to compete with China fully in the international market (Dutta, 1995).

From the demand side of silk in the world markets, it is worth mentioning that in the past few years, some sort of "silk craziness" has been developed world wide among the consumers and this has encouraged the South-Asian countries of third world to expand their sericulture activities. Among these countries India and Thailand have made positive efforts in developing technologies for manufacturing classic and quality silk products, which has enhanced their export potential substantially.

1.4 *Silk Production in India*

India has the unique distinction of being the only country in the world, producing all these four major varieties of silk mulberry, tasar, eri and muga commercially. Silk has been an inseparable part of Indian culture, tradition and economy over thousands of years. On social and religious occasions silk apparels are used, particularly by the women folk. The fine quality Indian finished silk products are

well known worldwide. The development of modern printing technology has created a new dimension for diversification of Indian silk products. These printed silk goods have increased the market demand for bulk of Indian export along with the masterly designed traditional handloom products.

At present, silk is produced in almost all the states of India. Among those Karnataka, Andhra Pradesh, Tamil Nadu, West Bengal, Assam, Jammu and Kashmir and Jharkhand are the traditional silk producing states while the others are non-traditional sericulture states. Indian sericulture is distributed both in the temperate and tropical zones. Temperate sericulture is limited to Kashmir, sub-Himalayan and other hilly regions. The rest of India practises tropical sericulture.

Sericulture is an ideal practice for rural poor Indians because of quick and high returns with minimum investment. Earlier, sericulture was considered to be a subsidiary occupation in India. But this notion has been changed and today it is considered to be one of the most remunerative occupations in India as reflected from the increased land under host plant cultivation and higher raw silk production every year. This has been made possible through the development and introduction of new technology in all the phases of sericulture activities. Also, the infrastructure facilities in India for silk reeling, twisting and weaving were also made available. A total of 9 spun silk mills were also set up in India for the production of spun silk yarn from silk wastes. Two of them, Channapatana (Karnataka) and Bhagolpur (Bihar) are under public sector and the remaining seven are under private ownership. Another two spun silk mills are under construction in Assam. Major silk printing centres are located in Mumbai, Vanarasi, Delhi and Bangalore.

The sericulture in India is widely scattered over different states of the country. Production of mulberry raw silk is mainly confined to the states of Karnataka, Andhra

Pradesh, Tamil Nadu, West Bengal which together account for about 98.45 per cent of the country's total mulberry raw silk production (Central Silk Board, 2005). Karnataka is leading among all the mulberry silk producing states that followed by Andhra Pradesh and Tamil Nadu.

Tasar industry has been a traditional practice of tribal and hill folks inhabiting the forest of Central India. The rich production potentialities within the country and a steady demand for products outside the country have promoted commercial exploitation of this craft. This culture provides substantial income to the tribal people of India, so it indirectly prevents them from destroying forests for their livelihood. Tasar industry today has also encouraged growth of natural resources (food plants) and generation of employment (mainly among the tribal people) in keeping with their traditions and way of life (Sengupta, 1986).

Tropical tasar growing area forms a distinct belt of humid and dense forest sprawling over the Central and Southern India. It covers Madhya Pradesh, Maharasta, Karnataka, Andhra Pradesh, Orissa, Jharkhand, Bihar and West Bengal where Arjun and Asan food plants are abundantly available. Temperate tasar growing areas extends from Jammu and Kashmir in the west to Manipur in the east including Assam, Meghalaya and Nagaland.

India enjoys the world monopoly for the fabulously famed golden yellow muga silk, which is not found anywhere on a large scale except Assam. Of course, it is produced in negligible quantity in Mizoram, Meghalaya, Arunachal Pradesh and Nagaland. It is to be noted that the Baisaguri village of Coach Bihar district of Best Bengal also established itself as muga producing area (Singha, *et al*, 1991). Efforts have also been made to introduce muga culture in Mysore, Muradabad (U.P.), which

have not yet met with success. This may be either due to lack of suitable food plants or climate (Thangavellu, *et al*, 1988).

The production of eri silk is mainly confined to the state of Assam, while on a small scale it is also produced in Meghalaya, Manipur, Mizoram, Arunachal Pradesh, Nagaland, Bihar and Orissa. Assam occupies the pivotal position in the production of eri silk.

1.5 *Sericulture in North-East India*

The North-Eastern region of India has been traditionally practicing sericulture particularly mulberry, muga and eri from time immemorial. North Easter region started practicing oak tasar culture only from 1975-76. Now, this area produces all the four major varieties of silk. The production of different varieties of silk in different states of North-East India is shown in table-1.3.

From table-1.3, it is observed that North East India contributed 16.44 per cent of total raw silk production in India in 1951-52, which has declined to 9.17 per cent in 2005-06 due to relatively faster growth of production in other parts of the country. Out of four components of silk, North Eastern region enjoys monopoly in muga-culture. Its production has gone up from 45 MT in 1951-52 to 110 MT in 2005-06 with a little fall in production during 1981-82 due to unfavourable climate. Like muga silk, North Eastern region has been enjoying partial monopoly in eri producing more than 90 per cent since 1951-52. In case of mulberry, contribution of North-Eastern region to total production of India is insignificant. Though production in North Eastern region increased from 9.00 M.T. in 1951-52 to 71 M.T. in 2005-06 through various ups and down, its share to total Indian mulberry silk production has declined from 1.44 per cent 1951-52 to 0.46 per cent in 2005-06.

Table-1.3

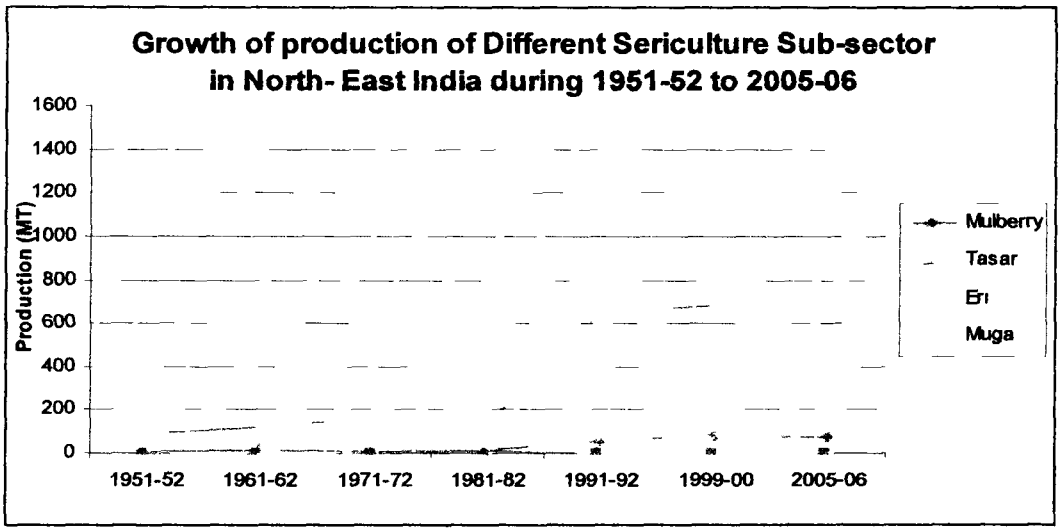
Production of Raw Silk in the North-East India during 1951-52 to 2005-06 (M.T.)

Year	Mulberry			Tasar			Eri			Muga			All India Total	Total silk production in NER	% silk production in NER
	India	NER	% of NER to India	All India	NER	% of NER to India	India	NER	% of NER to India	India	NER	% of NER to India			
1951-52	625	9.00	1.44	124	0.00	0.00	100	93.00	93.00	45.00	45.00	100	894.00	147.00	16.44
1961-62	1308	13.07	1.00	202	0.00	0.00	132	120.00	90.91	52.64	52.64	100	1694.64	185.71	10.96
1971-72	2046	12.00	0.59	314	0.00	0.00	168	166.00	98.81	72.00	72.00	100	2600.00	250.00	9.62
1981-82	4801	16.00	0.33	257	20.00	7.78	147	125.00	85.03	44.00	44.00	100	5249.00	205.00	3.91
1991-92	10658	60.30	0.57	329	1.00	0.30	704	655.80	93.15	73.52	73.52	100	11764.52	790.62	6.72
1999-00	13944	80.64	0.58	211	1.14	0.54	974	682.56	70.08	84.70	84.70	100	15213.70	849.04	5.58
2005-06	15445	71.00	0.46	308	3.00	0.97	1442	1403.2	97.31	110	110	100	17305.00	1587.2	9.17

Source- Office of the Directorate of Central Silk Board (North Eastern Region), Guwahati, Assam.

Lastly, in case of tasar, production of North-East India and its contribution to total production of the country is negligible. Its contribution has always been less than one per cent to the production of all India. Still this practice is at infancy stage in this region.

Diagram-1.1



Distribution of silk in North-Eastern states can be understood from the table-1.4. From the table it is noticed that Assam ranked first in the production of muga and eri raw silk among all the North Eastern states. It is due to both extensive and intensive cultivation of muga host plant (which is discussed later). In the case of mulberry raw silk, although Assam stood first initially, it was relegated to second position by Manipur in the year 1985-86 and since then it remained in that position. Similarly in case of tasar raw silk Manipur has always been at the top among all the North Eastern States.

Table-1.4

Distribution of Raw Silk in North-East India during 1980-81 to 2005-06

Year	Silk Variety	Assam	Meghalaya	Manipur	Mizoram	Nagaland	Tripura	
		Raw Silk (MT)	Raw Silk (MT)	Raw Silk (MT)	Raw Silk (MT)	Raw Silk (MT)	Raw Silk (MT)	Raw Silk (MT)
1980-81	Mulberry	7	NEG	05	NEG	02	NA	NA
	Muga	48	NA	NA	NA	NA	NA	NA
	Eri	95	34	NA	NA	NA	NA	NA
	Oak Tasar	NA	NA	NA	NA	NA	NA	NA
1985-86	Mulberry	15	0.37	23	0.4	0.45	0.24	NEG
	Muga	52	NA	NA	NA	NA	NA	NEG
	Eri	226	69	23	NA	09	NA	01
	Oak Tasar	NA	NA	NA	NA	NA	NA	NA
1990-91	Mulberry	13	01	23	0.4	01	02	01
	Muga	69	NA	NA	NA	NEG	NA	0.05
	Eri	335	115	189	NA	21	NA	05
	Oak Tasar	NA	NA	0.5	NA	0.35	NA	NA
1995-96	Mulberry	23	01	45	01	01	01	01
	Muga	86	0.8	0.52	NA	0.92	NA	0.1
	Eri	418	130	140	NA	18	NA	10
	Oak Tasar	0.01	NA	0.52	NA	NA	NA	NEG
2000-01	Mulberry	16.89	1.45	56.5	20.7	0.36	3.6	6.15
	Muga	94.32	13.85	0.111	NA	0.07	NA	0.334
	Eri	432	110	163	NA	26.1	NA	0.389
	Oak Tasar	NA	NA	0.054	0.08	NA	NA	0.10
2005-06	Mulberry	8.00	3.00	48	6.00	1.00	4.00	1.00
	Muga	104	5.40	0.06	0.07	0.18	NA	0.24
	Eri	745.00	280.00	235.00	3.20	130.00	NA	10.00
	Oak Tasar	NA	NA	3.00	NA	NEG	NA	NA

Source: Office of the Directorate (North Eastern Region), Central Silk Board, Guwahati, Assam

Notes: (i) NA means Not Available

(ii) NEG indicates production is less than 50 kilograms.

1.6 *A Brief Account of Ericulture in Assam and Barpeta*

Sericulture has been a practice of the village folk of Assam since time immemorial. The erstwhile undivided Assam is known to be the original home of eri and muga silk in the world. Nature has endowed Assam with favourable climatic and environmental conditions, which make her the natural homeland of various silk producing worms and their food plants. However, mulberry and tasar are not produced extensively in Assam (Dutta, 1983).

Out of four sericulture products, eri occupies the first position in terms of production and generation of employment in Assam, though at all India level mulberry occupies the first position and followed by ericulture (Directorate of Sericulture, Government of Assam, 2006). Ericulture has always been a subsidiary occupation of the rural women folk of Indo-Mongoloid and Tibeto-Burman races of the Brahmaputra valley. Largely the Misings, Kacharis, Bodos, Mikirs, Rabhas, Karbis, Garos tribes practise this culture during their leisure time but it helps to improve their economic condition a lot especially of women. Though ericulture is practised in almost all the districts of Assam, it is highly concentrated in the districts of Karbi Anglong, North Cachar Hills, North Lakhimpur, Demaji, Barpeta, Kokrajhar, Sibsagar, Darrang etc.

In the undivided Barpeta district also, eri occupies the first position in terms of production and generation of employment among all the varieties of sericulture activities (Directorate of Sericulture, Government of Assam, 2006). It is widely practised in the northern part of the district. It is a traditional practice of the *Bodo* people of this district. Out of 12 (twelve) Community Development (C.D.) blocks of Barpeta district, production of ericulture is highly concentrated in Gobardhana, Jalah and Sarukhetri development blocks though it is also produced in Bhawanipur, Chenga, Bajali, Barpeta, Chakchaka, Paka-Betbari and Gomaphulbari development block. But

production of eri silk is almost nil in Mandia and Rupsi development block (as shown in the ericulture map of the district). In 2005-06, ericulture was practised in 140 villages out of total 1073 villages of the district. Out of 307 hectares of land under different sericulture host plants, 103 hectares were under eri host plant in 2005-06 (Directorate of Sericulture, Government of Assam, 2006). Out of 290494 families in the district (Census Report, 2001) 3421 families were engaged in this occupation in 2004-05 (Directorate of Sericulture, Government of Assam, 2005). It seems that very few families in the district are engaged in such activities. But if the percentage of Schedule Caste and Schedule Tribe population is considered it is clear that majority of Schedule Caste and Schedule Tribe population are engaged in it. Only 5.70 and 7.48 per cent of its population belong to Schedule Castes and Schedule Tribes respectively and a major portion of them is Muslim who lives mainly in Mandia and Rupsi development block and is not engaged in ericulture. The production of eri cut cocoon in 2004-05 was 38 MT (Directorate of Sericulture, Government of Assam, 2005).

1.7 *Objectives:*

Though the main objective of the proposed study is to investigate the problems and prospects of ericulture in Assam, the specific objectives of the study are to:

(i) explain the importance of ericulture in the economy of Assam,

(ii) examine the role of ericulture in the generation of employment and income in Assam, and finally to

(iii) investigate the problems and prospects of ericulture in Assam.

1.8 *Rationale behind Undertaking this Study*

Ericulture has been playing an important role in the development of the economy of Assam since time immemorial. Its contribution to income, employment

and domestic and international trade has been significant. Also, over time growth of production of eri cocoon has been faster than any other sericulture activity. During 1980-81 to 2004-2005, production of eri raw silk has increased from 95 MT to 527 MT, i.e. by more than 500 per cent. In comparison to eri, production of muga has increased from 48 MT to 80.75 MT and that of mulberry has increased only from 7 MT to 7.71 MT during the same period (Directorate of Sericulture, Government of Assam).

In 1990-91, 1.18 lakh families were engaged in ericulture, which has increased to 1.35 lakh in 2005-2006. Land under ericulture in the state of Assam has also increased from 2005.37 hectares in 1990-91 to 7279 hectares in 2005-2006 (Directorate of Sericulture, Government of Assam), which is also the highest among all the sericulture activities.

Nowadays, Assam Apex Weavers and Artisans Co-operative Federation Limited (ARTFED) has also taken several steps for the promotion of export of eri-products like curtains, wall coverings, cushion covers, place mat, upholstery, etc. to USA, Japan and European countries like Turkey, Israel and South Africa. In 1997-98, export of eri and muga abroad by ARTFED was worth Rs 22.75 lakhs, which increased to Rs 253.6 lakhs in 2006-2007 (ARTFED, 2007).

In spite of the importance of ericulture in Assam, there has been no systematic study about the economic aspects of this activity in India or in the state of Assam and thus the literature in this field is scanty. Although there is sufficient study on the zoological aspects of eri and also on other sericulture activities there is no systematic analysis of economics of ericulture in Assam and thus there is much scope for research on the economic aspects. A careful study in this field would provide some useful insights that may help in policy formulation towards the proper growth of ericulture in Assam.

Though the contribution of Barpeta to total production of eri raw silk of Assam is low as compared to the districts of Karbi Anglong, N. Lakhimpur and N. C. Hills, considering the size and population of the district, the concentration of ericulture is much higher in the district of Barpeta. Moreover, the growth rate of area under eri host plant and family engaged in ericulture is the second highest in Assam. Moreover, the productivity per hectare of eri raw silk has increased over time in the district though it has declined in most of the other districts (will be seen later). Thus, in the present study a special attention has been given to the district of Barpeta.

1.9 *Hypotheses*

The following hypotheses have been tested in the present study:

(i) Ericulture has grown significantly in Assam since 1980.

(ii) Ericulture in Assam is more effective in the generation of employment than the other ventures of sericulture.

(iii) Profitability of ericulture is significantly higher than that of any other sericulture activities in Assam at the present technological set up.

1.10 *Scope of the Study:*

The whole study is divided into nine chapters. Besides the chapter on introduction, review of literature and methodology of the study, chapter-4 examines the role of ericulture proper in the generation of employment and income over time in Assam in general and the district of Barpeta in particular. Also the scope of income and employment in endi-textile industries is estimated and analysed on the basis of primary data collected from Barpeta district. Spatio-temporal variation in area under ericulture proper, its output, employment and yield per hectare in Assam has been

discussed in chapter-5. Chapter-6 is devoted to the comparative analysis of eri, muga, mulberry and tasar in terms of production, employment and contribution to NSDP and export earnings of Assam, profitability etc. A brief description of problems and prospects of ericulture have been incorporated in chapter-7. The role of different financial agencies in the promotion of ericulture in Assam is discussed in chapter-8. Chapter-9 provides summary of observations and policy conclusions emanated from the whole study.

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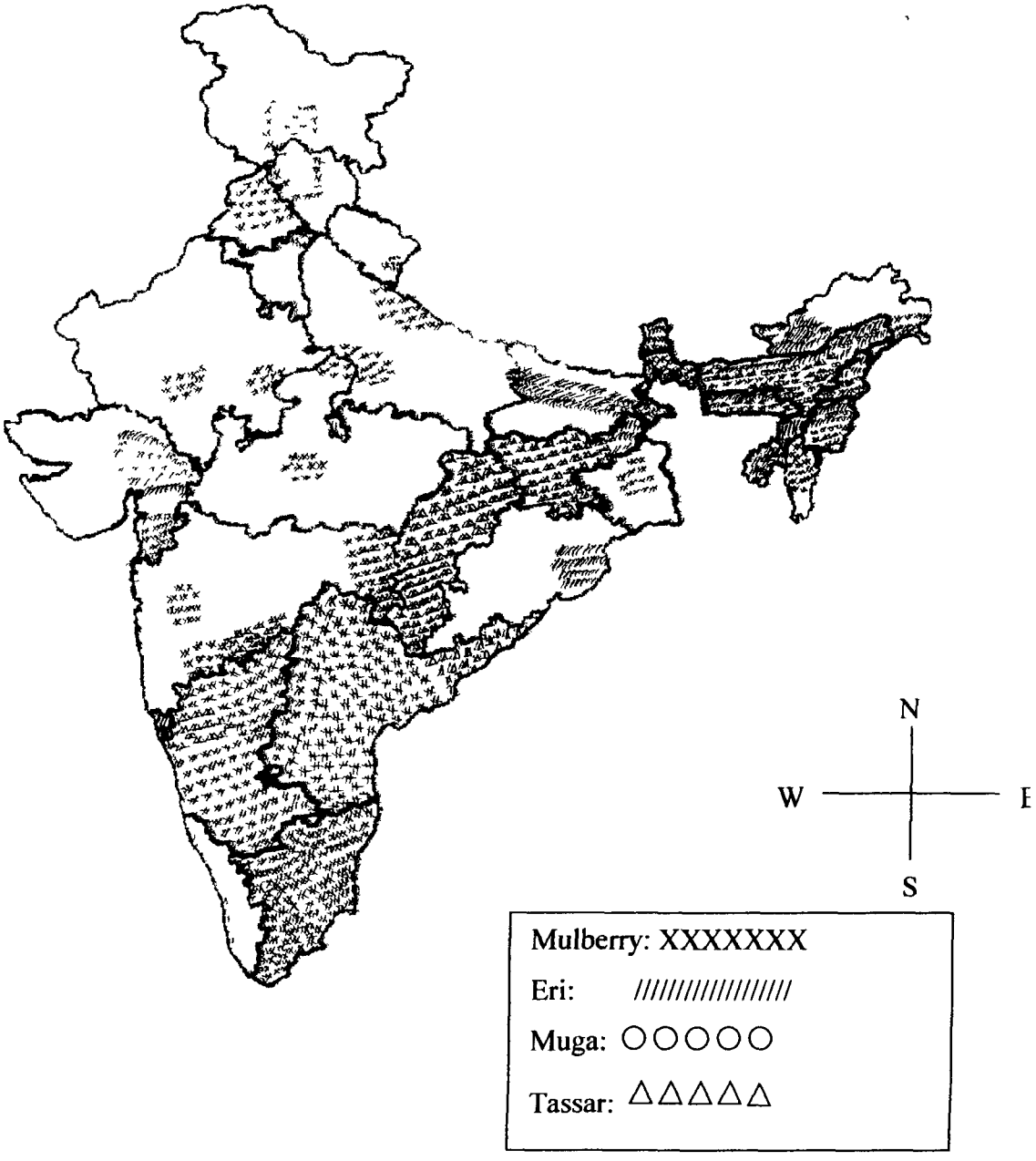
SERICULTURAL MAP OF INDIA



Map of Assam indicating Barpeta District