



## Global Silk Industry

The major silk producing countries in the world are; China, India, Uzbekistan, Brazil, Japan, Republic of Korea, Thailand, Vietnam, DPR Korea, Iran, etc. Few other countries are also engaged in the production of cocoons and raw silk in negligible quantities; Kenya, Botswana, Nigeria, Zambia, Zimbabwe, Bangladesh, Colombia, Egypt, Japan, Nepal, Bulgaria, Turkey, Uganda, Malaysia, Romania, Bolivia, etc.

The major silk consumers of the world are; USA, Italy, Japan, India, France, China, United Kingdom, Switzerland, Germany, UAE, Korea, Viet Nam, etc.

Even though silk has a small percentage of the global textile market - less than 0.2% (the precise global value is difficult to assess, since reliable data on finished silk products is lacking in most importing countries) - its production base is spread over 60 countries in the world. While the major producers are in Asia (90% of mulberry production and almost 100% of non-mulberry silk), sericulture industries have been lately established in Brazil, Bulgaria, Egypt and Madagascar as well. Sericulture is labour-intensive. About 1 million workers are employed in the silk sector in China. Silk Industry provides employment to 7.9 million people in India, and 20,000 weaving families in Thailand. China is the world's single biggest producer and chief supplier of silk to the world markets. India is the world's second largest producer. Sericulture can help keeping the rural population employed and to prevent migration to big cities and securing remunerative employment; it requires small investments while providing raw material for textile industries.

**India is the Second largest producer of silk in the World.** Among the four varieties of silk produced, in 2014-15, Mulberry accounts for 74.51% (21,390 MT), Tasar 8.5% (2,434 MT), Eri 16.5% (4,726 MT) and Muga 0.55% (158 MT) of the total raw silk production of 28708 MT.

Production of raw silk in India during the year 2015-16 (April to August- 2015) has been 9,590 MT in which, mulberry and Vanya raw silk output amounts to 7,053 MT and 2,537 MT, respectively.

Silk, "the queen of textiles" is the natural fiber, which is secreted by silkworm, i.e. mulberry and non-mulberry silkworm (eri, muga, tasar & oak tasar) belonging to families Bombycidae & Saturnidae (Order -Lepidoptera, class-Insecta) respectively.

Silk is proteineous in nature which is made up of fibrin (C30 H46 N10 O11), fiber and sericin (C30 H40 N10 O16).

The filament is coated with gummy material. The silkworm rearing is called as sericulture which derived from the word "Su" (si) meaning silk is traditionally associated with the Socio-Economic life of many countries and used for exquisite textile and royal dresses since time immemorial (Chandra, 1997).



Sericulture and Silk Industry is an avocation in India at least the second century B.C. **According to historians, raw silk was exported during the reign of Kanishka in 58 B.C.** Some legend says that Chinese Buddhist monks smuggled in eggs of silkworms and seeds of the Mulberry tree in their hollow bamboo sticks. In its long history, silk industry has passed through periods of great prosperity as well as decline. **The modern silk history dates back to the 15th Century, which was also famous for sculpture and paintings.**

**During the 18th, 19th and early 20th centuries sericulture flourished in the States of the then Bengal, Mysore and Kashmir. Indian silk industry has improved manifold since independence from the raw silk production level of 1437 MT during First Plan period (1969-74) to 23679 MTs by the end of March 2013.** This has been possible due to the sustained efforts of Central Silk Board, Govt. of India, its research agencies, Provincial (State) sericulture departments and private stakeholders. Development and introduction of improved races of silkworm breeds, high yielding food plants, improvement in rearing practices, organized seed production network, technology up-gradation in reeling, weaving, wet processing, etc., along with the investment made by the governmental agencies have led to an overall improvement in productivity and quality.

Mulberry is the largest practiced sericulture industry accounting for almost 76 per cent of the entire silk production.

The industry provides employment to more than 7.6 million people across 51,000 villages, who operate 328,627 handlooms and 45,867 power looms with 8,14,616 weavers.

Its exports of silk are worth about US\$ 360 Million of which 70 per cent comprises natural silk yarn and fabrics, 13 per cent made-ups and 26 per cent garments.

Domestic demand stands at 28800 MT compared to production of 23679 MT annually thanks to the growing demand for silk fabrics and sarees from Indian women.

Aggressive promotion of the silk industry in India has attracted a large number of organized players to set up modern units for both apparel as well as home textile production.

# India's silks are known for their finery and artistic designs and distinct colours.

The country is known the world over for the exquisite brocade

**Fabrics of Banaras,**

**Silks of Karnataka,**

**Tie-and -dye and**

**Patola of Gujarat and Rajasthan,**

**Ikats from Orissa,**

**Fine Bandhej**

**Temple silks of Kancheepuram and Tanjore, etc.,** are only a few of the myriad range of silk weaves, textures and patterns available in India.

Sl no	State	Silk Centre
1	Andhra	Dharmavaram, Pochampalli, Venkatagiri, Narainpet
2	Assam	Sualkuchi
3	Bihar	Bhagalpur
4	Gujarat	Surat, Cambay
5	Jammu & Kashmir	Srinagar
6	Karnataka	Bangalore, Anekal, Ilkal, Molakalmuru, Melkote, Kollegal
7	Chattisgarh	Champa, Chanderi, Raigarh
8	Maharashtra	Paithan
9	Tamil Nadu	Kanchipuram, Arni, Salem, Kumbhakonam, Tanjavur
10	Uttar Pradesh	Varanasi
11	West Bengal	Bishnupur, Murshidabad, Birbhum

## Where do we find Silk ?

**Geographically, Asia is the main producer of silk in the world and produces over 95 % of the total global output. Though there are over 40 countries on the world map of silk, bulk of it is produced in China and India, followed by Japan, Brazil and Korea. China is the leading supplier of silk to the world.**

**India is the second largest producer of silk and also the largest consumer of silk in the world.**

It has a strong tradition and culture bound domestic market of silk. In India, mulberry silk is produced mainly in the states of Karnataka, Andhra Pradesh, Tamil Nadu, Jammu & Kashmir and West Bengal, while the non-mulberry silks are produced in Jharkhand, Chhattisgarh, Orissa and north-eastern states.



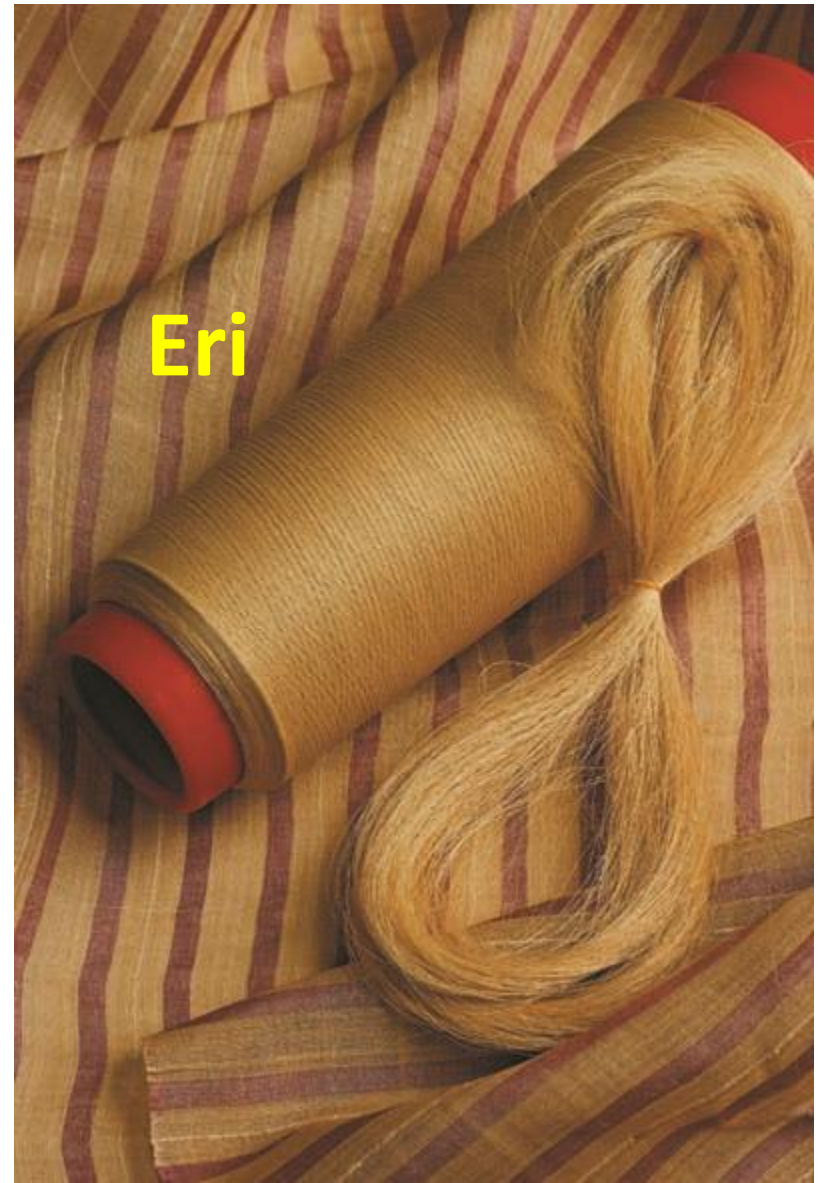


**Mulberry**

**Muga**



India is the only country in the world producing all the four commercially known varieties of silk; Mulberry, Eri, Tasar and Muga.



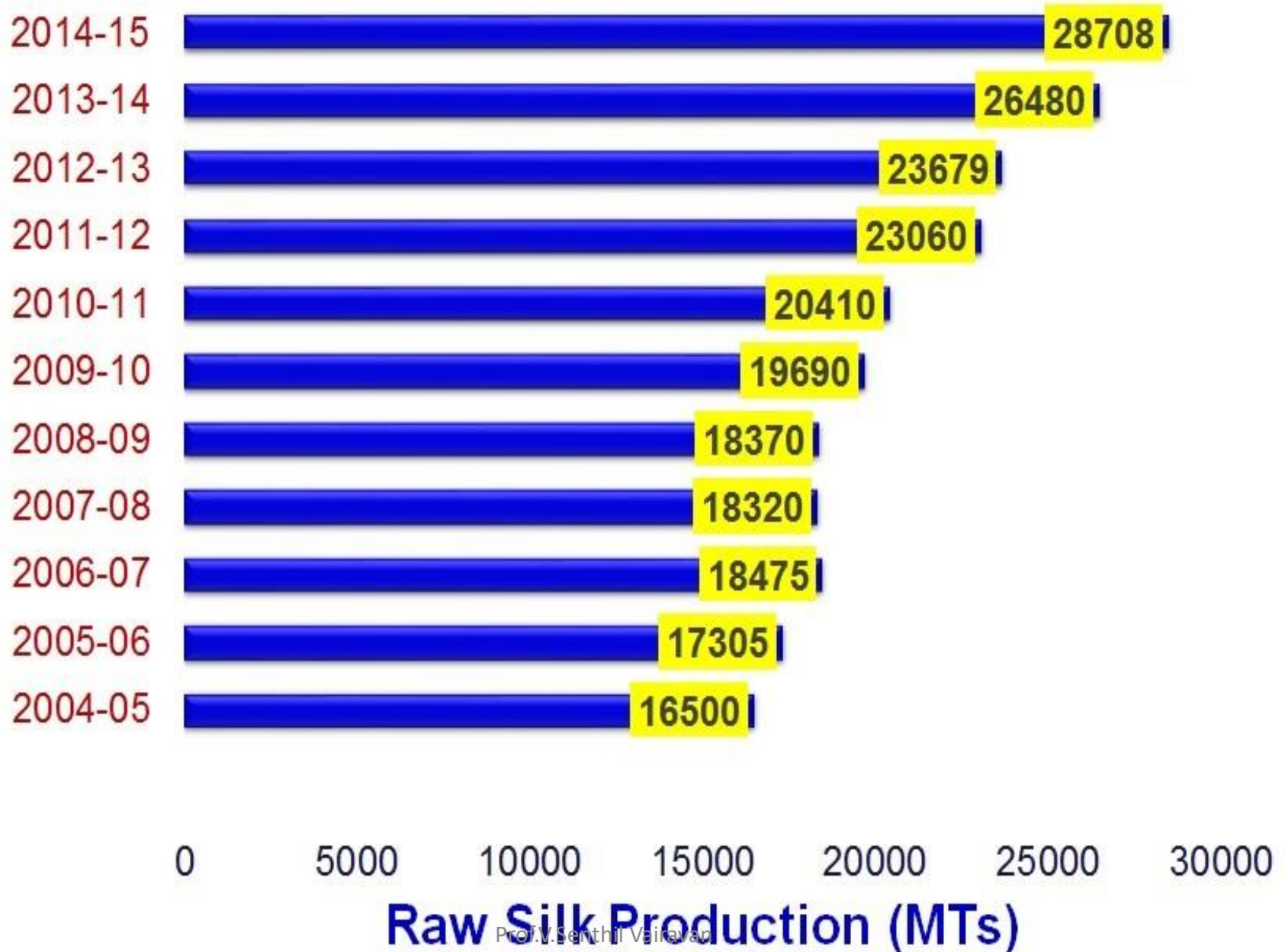
## Commercially exploited sericigenous insects of the world and their food plants

Common Name	Scientific Name	Origin	Primary Food Plant(s)
Mulberry Silkworm	<i>Bombyx mori</i>	China	<i>Morus indica</i> <i>M. alba</i> <i>M. multicaulis</i> <i>M. bombycis</i>
Tropical Tasar Silkworm	<i>Antheraea mylitta</i>	India	<i>Shorea robusta</i> <i>Terminalia tomentosa</i> <i>T. arjuna</i>
Oak Tasar Silkworm	<i>Antheraea proylei</i>	India	<i>Quercus incana</i> <i>Q. serrata</i> <i>Q. himalayana</i> <i>Q. leuco tricophora</i> <i>Q. semicarpifolia</i> <i>Q. grifithi</i>
Oak Tasar Silkworm	<i>Antheraea frithi</i>	India	<i>Q. dealdata</i>
Oak Tasar Silkworm	<i>Antheraea compta</i>	India	<i>Q. dealdata</i>
Oak Tasar Silkworm	<i>Antheraea pernyi</i>	China	<i>Q. dendata</i>
Oak Tasar Silkworm	<i>Antheraea yamamai</i>	Japan	<i>Q. acutissima</i>
Muga Silkworm	<i>Antheraea assama</i>	India	<i>Litsea polyantha</i> <i>L. citrata</i> <i>Machilus bombycine</i>
Eri Silkworm	<i>Philosamia ricini</i>	India	<i>Ricinus communis</i> <i>Manihot utilisima</i> <i>Evodia fragrance</i>

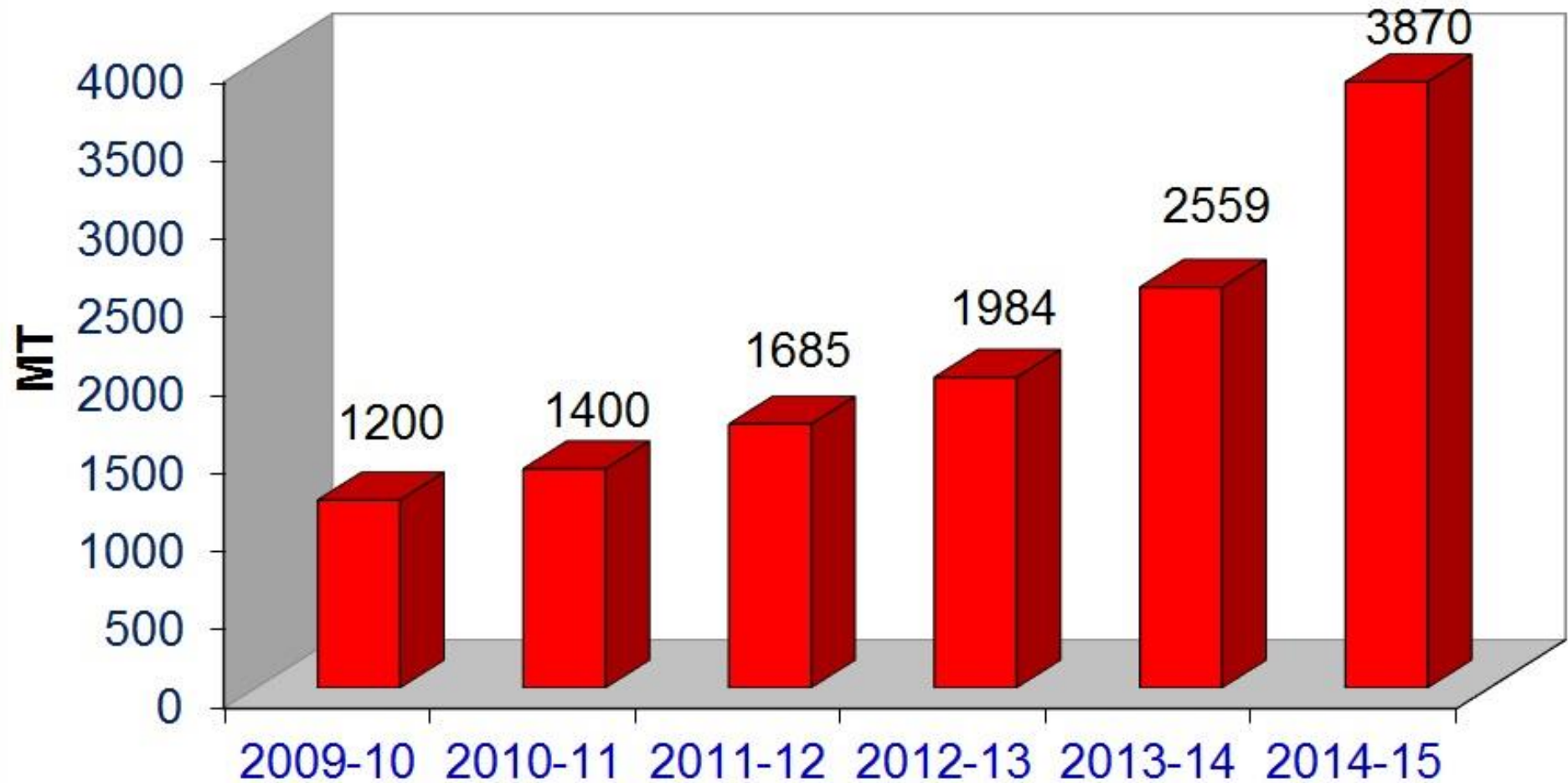
Except mulberry, other non-mulberry varieties of silks are generally termed as vanya silks. India has the unique distinction of producing all these commercial varieties of silk. Prof.V.Senthil Vairavan

## Silk Production in India (10 years)

Year (April to March)



# Production of Bivoltine Raw Silk in the Country



Year

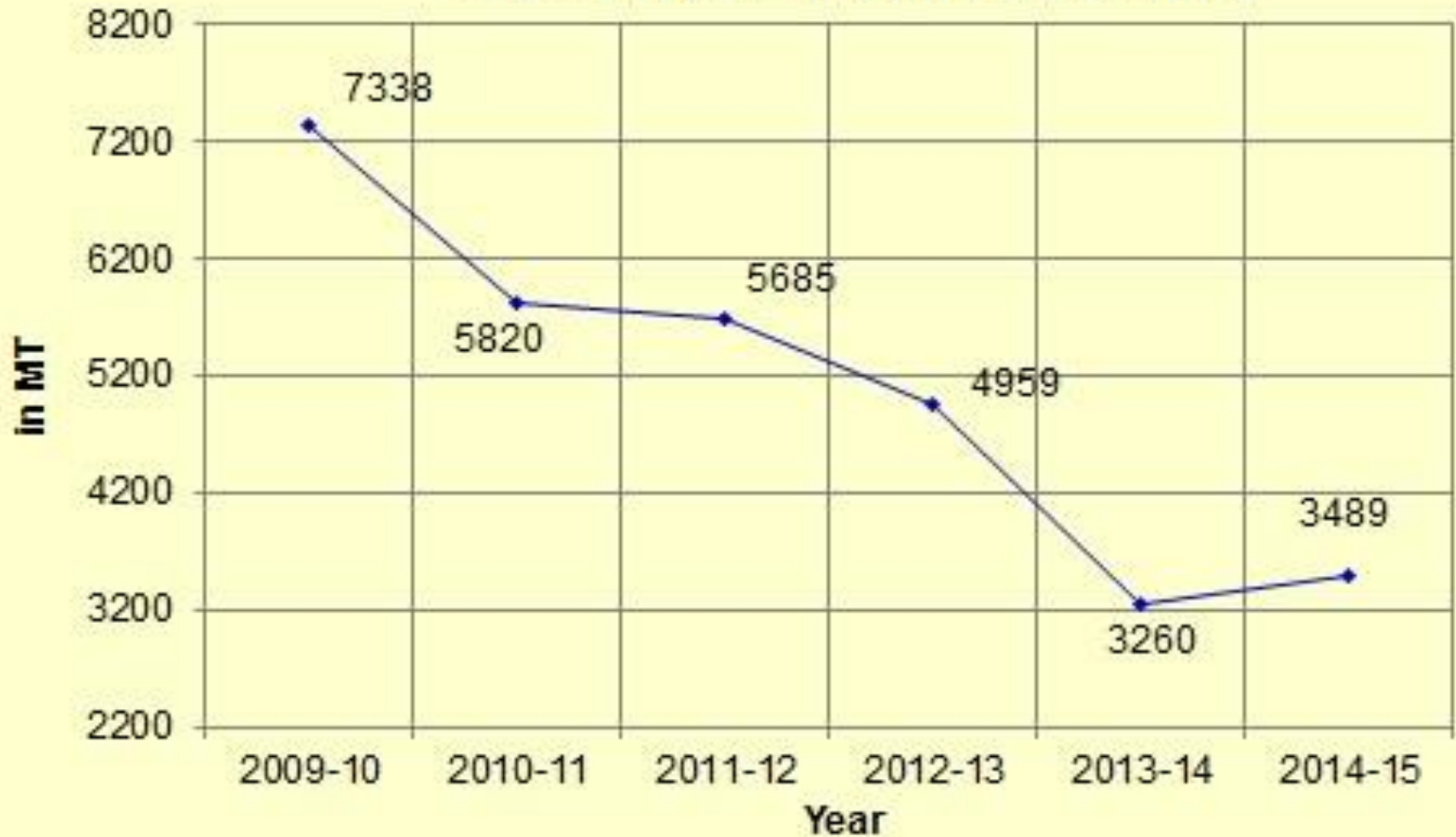
Prof.V.Senthil Vairavan

## Export of Silkgoods

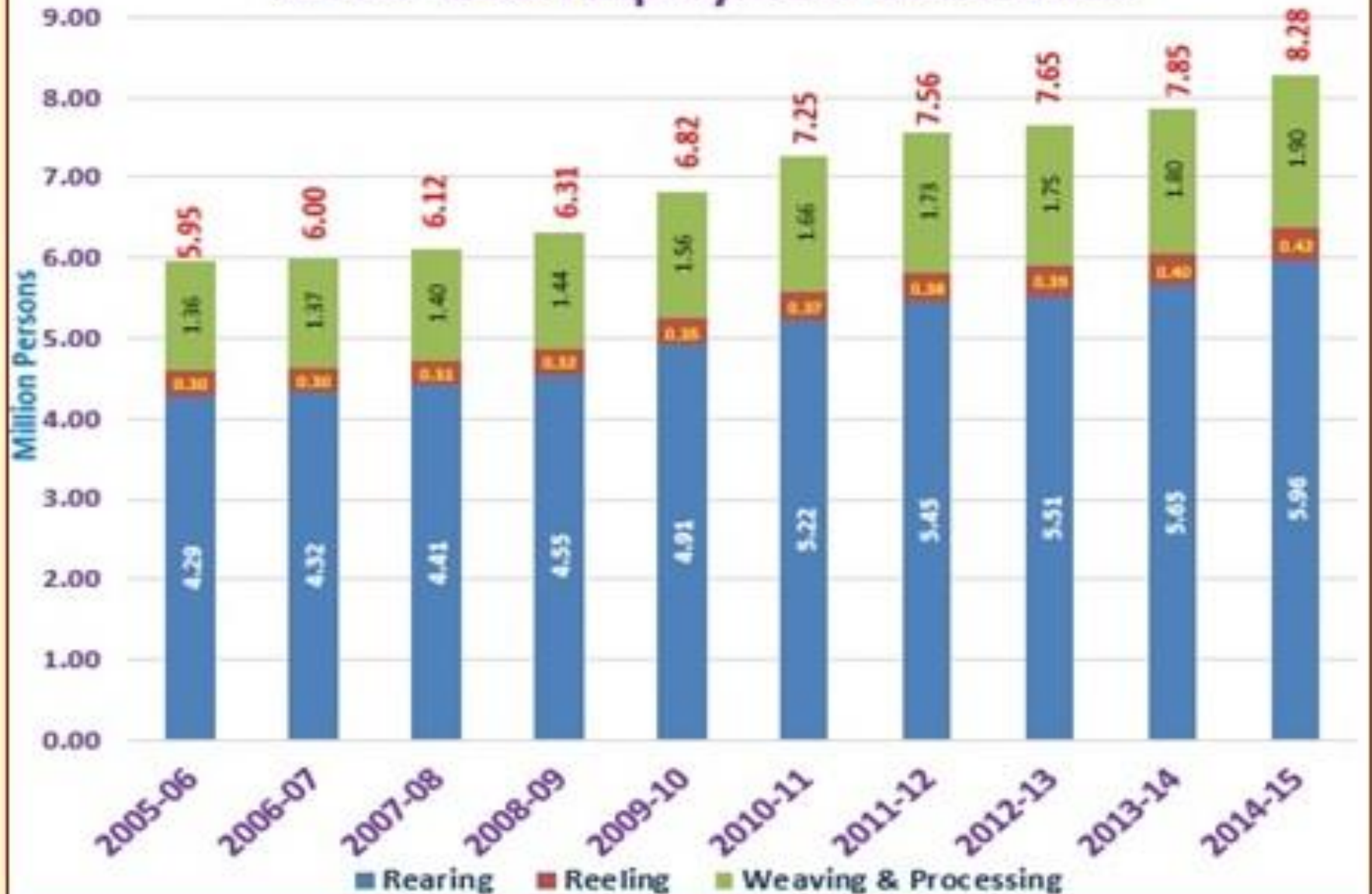


# Import of Raw Silk

## Import of Raw Silk into the Country



## Sector-wise Employment Generation





**State wise Raw Silk production during 2012-13 to 2015-16**

(in MT)

#	State	Achievement			
		2012-13	2013-14	2014-15	2015-16 (P) (upto Aug-2015)
1	Karnataka	8219	8574	9645	3576
2	Andhra Pradesh	6550	6912	6485	1558
3	Telangana			101	27
3	Tamil Nadu	1185	1120	1602	776
4	Kerala	6	4	7	3
5	Maharashtra	97	122	221	74
6	Uttar Pradesh	157	188	236	36
7	Madhya Pradesh	190	195	248	24**
8	Chhattisgarh	391	391	234	37
9	West Bengal	2070	2079	2500	687
10	Bihar	22	52	53	1.34*
11	Jharkhand	1090	2003	1946	180*
12	Odisha	104	53	98	1.74
13	Jammu & Kashmir	145	136	138	131
14	Himachal Pradesh	23	25	30	25
15	Uttarakhand	17	22	29	16
16	Haryana	0.13	0.13	0.3	0.37
17	Punjab	5	4	4	1.02
18	Assam & Bodoland	2068	2766	3222	1859**
19	Ar.Pradesh	22	15	12	8*
20	Manipur	418	487	516	147*
22	Meghalaya	517	644	656	155*
23	Mizoram	40	44	50	30
24	Nagaland	324	606	619	218*
25	Sikkim	3	0.20	8	3*
26	Tripura	15	40	48	15*
<b>Total</b>		<b>23,679</b>	<b>26,480</b>	<b>28,708</b>	<b>9590</b>

(p): Provisional

\*Refers to April to June-2015

\*\*Refers to April to July-2015

Prof.V.Senthil Vairavan

# OUTLOOK

The Plan activities for the different sectors of the country have been conceived on a **Five Year** period. The **XII Plan** period has already commenced from **April 2012 - March 2013**, and is expected to conclude in 2016-17. XII Plan proposed **an ambitious target of producing 32000 MTs of silk with special focus on producing internationally graded import substitute bivoltine silk.**

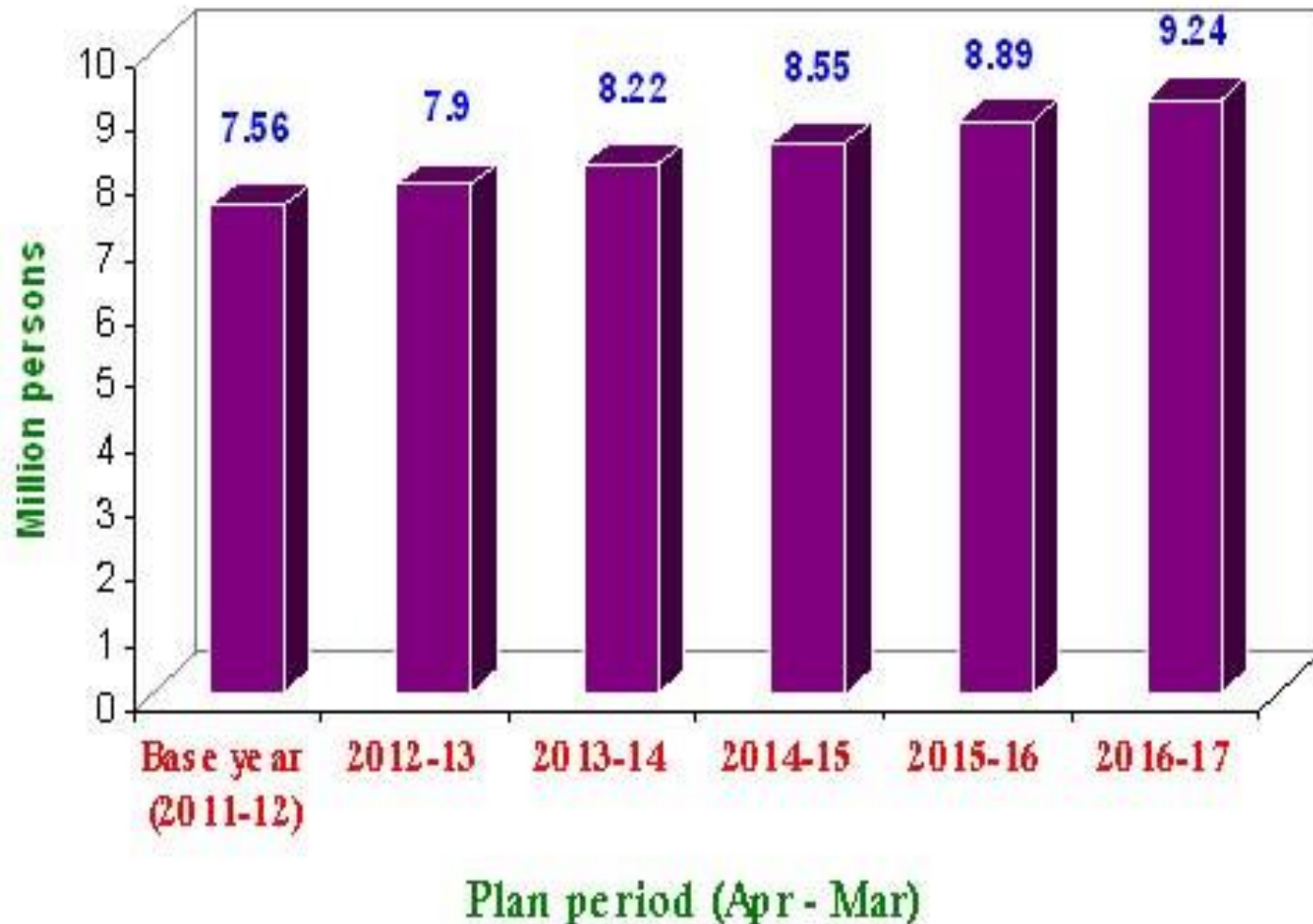
## Silk Production target from 2012-13 to 2016-17



## Export Earnings from 2012-13 to 2016-17



## Employment Generation from 2012-13 to 2016-17





### Overview of Sericulture



**Thiru. P.Mohan**  
**Hon'ble Minister for Rural Industries**



**Thiru. Harmander Singh, I.A.S.,**  
**Principal Secretary to Government.**



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Regional Consultative Meeting on sericulture of SAARC countries inaugurated by Vice Chancellor, University of Mysore on 24-08-2015



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**Upcoming Events**

Next ISC Executive Committee, 12-13 January 2016, Kolkata, India

**Resources**



[Silkworm & Mulberry Database](#)

**Visit of Swaziland delegation**



Prof.V.Senthil varadani

**Message from Secretary General**



"I would take this opportunity to inform t

Flag	Country	Date of joining	Instrument of Accession				
	Afghanistan	01/01/2015	Afghanistan Convention	Tunisia	Thailand	Syria	Romania
	Bangladesh	23/06/2014	Bangladesh Convention				
	Brazil	10/10/1977	Brazil Convention				
	DPR Korea	19/02/2014	DPR Korea Convention	12/11/1967	12/02/1981	20/08/2007	12/02/1959
	Egypt	21/02/1980	Egypt Convention				
	France	01/01/1957	France Convention				
	Greece	10/07/2004	Greece Convention				
	India	19/01/1959	India Convention	Tunisia Convention	Thailand Convention	Syria Convention	Romania Convention
	Indonesia	25/05/1992	Indonesia Convention				
	Iran	28/05/1975	Iran Convention				
	Japan	23/03/1961	Japan Convention				
	Madagascar	29/09/1961	Prof. V. Senthil Vairavan Madagascar Convention				



# 1. Global Silk Production

Country	2008	2009	2010	2011	2012	2013	2014
Bangladesh			40	38	42.50	43	44.5
Brazil	1177	811	770	558	614	550	560
Bulgaria	7.5	6.3	9.4	6	8.5	8.5	8
China	98620	84000	115000	104000	126000	130000	146000
Colombia	0.6	0.6	0.6	0.6	0.6	0.6	0.5
Egypt	3	3	0.3	0.7	0.7	0.7	0.82
India	18370	19690	21005	23060	23679	26480	28708
Indonesia	37	19	20	20	20	16	10
Iran	180	82	75	120	123	123	110
Japan	96	72	54	42	30	30	30
North Korea	-	-	-	300	300	300	320
South Korea	3	3	3	3	1.5	1.6	1.2
Philippines	1	1	1	1	0.89	1	1.1
Syria	0.4	0.6	0.6	0.5	0.5	0.7	0.5
Thailand	1100	665	655	655	655	680	692
Tunisia	0.08	0.04	0.12	3	3.95	4	4
Turkey	15	20	18	22	22	25	32
Uzbekistan	770.5	780	940	940	940	980	1100
Vietnam	-	-	550	500	450	475	420
Madagascar	15	16	16	16	18	18	15
<b>Total</b>	<b>120396.08</b>	<b>106169.54</b>	<b>139100.02</b>	<b>129661.80</b>	<b>152845.64</b>	<b>159737.10</b>	<b>178057.62</b>

## THE SEAT OF ISC

Since its inception during 1960, the Seat of ISC was located at four different places:-

	Place	Period
1	Sericultural Research Station, Ales, France	1960 - 1976
2	La Mulatiere, Lyon, France	1976 - 2010
3	Bellecardie, Lyon, France	2011 - 2012
4	Bangalore, India	2013 onwards



Prof.V.Senthil Vairavan

**ISC Headquarters, Bangalore, INDIA**

## AWARDS - LOUIS PASTEUR PRIZE



ISC instituted the only International Award on Sericulture and Silk Industry, known as “Louis Pasteur Award”, which is considered as the Nobel Prize in Sericulture and Silk Industry.

The Award was instituted in the memory of Sir Louis Pasteur, the great Scientist of France. During 1870, Louis Pasteur rescued the silk industry by showing that the then epidemic Pebrine disease of silkworms could be controlled by prevention through simple microscopic examination of adult moths. These advances set the trend for a more mechanized and scientific approach to silk production than existed previously.



The award consists of a Citation, Medal and a Certificate. The award is given away during the ISC Congress held once in three years. The award is given to a maximum of three persons during the occasion.

The awardees are elected by an Expert Committee constituted for the purpose and later approved by the Executive Committee of the ISC.

The Member Countries are empowered to nominate suitable candidates from their countries for finalizing the award by the Committee constituted by ISC. Persons who have contributed outstandingly for the development of sericulture and silk industry can be nominated for the Louis Pasteur Award.

**Dr. Hiroaki MACHII**

Vice President

National Institute of Agrobiological Sciences  
2-1-2 Kannondai, Tsukuba, Ibaraki, 305-8602  
JAPAN



**Dr. Suwannee CUNVONG**

No.445 Moo 3 Sammakeechai Road, Tambon  
Wangchompoo, Amphur Muang,  
Phetchabun,  
THAILAND 67210



**Dr. B.S. ANGADI**

E-6, 2<sup>nd</sup> Floor, Central Silk Board Staff Quarters  
Lalbagh West Gate, Basavanagudi  
Bangalore – 560 004  
Karnataka, INDIA



Awarded by the Hon'ble Governor of Karnataka Province, India during the  
23rd ISC Congress held at Bangalore during 24-27 November, 2015  
Prof. V. Senthil Valavan



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## INDIA



**Date of Joining:** Monday, January 19, 1959  
**National Delegate:** Central Silk Board  
**Nodal Ministry:** Ministry of Textiles  
**Region:** Asia





वस्त्र मंत्रालय  
MINISTRY OF  
**TEXTILES**



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## Silkworm Spinning Silk





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## Mission & Vision

### Vision

- See India emerge as the leader in the world market for silk.

### Mission

- Make continuous efforts in Research and Development and Technology Transfer
- To create greater opportunities for gainful employment and improved levels of income in sericulture through spread of scientific sericulture practices
- To improve productivity in all stages of silk production
- Strengthen levels of efficiency through a commitment to quality



**Union Government:** Central Silk Board (CSB), coming under the Ministry of Textiles, Govt. of India, is the Central Agency for the development of Sericulture and Silk Industry.

The main activities of the CSB are R&D, upkeep of the 4 tier seed production network, supports the provincial government to implement field development programmes, promotion of silk at national and international level, and framing & implementing policy actions for the organized development of the industry. The activities of CSB are undertaken through 300 units and 4000 employees in different parts of the country. 800 scientists and 2500 technical staff are deployed for specialized areas in different disciplines of the industry.

**CSB spend about US \$60 Million per annum for the development of the sericulture and silk industry.**



**Tasar materials**



**Spider silk product**



**Mulberry silk tops**



**Mulberry silk sarees**



**Zardosi table cloth**



**Muslin silk scarf**



**Tasar life style products**



**Tasar Upholstery and Cushions**

Prof.V.Senthil Vairavan



**Valets and Clutches**



**Emerald jersey dress**



**Silk ties**

Prof.V.Senthil Vairavan



**Eri Socks**

**Moth Pairing**



**Egg laying**



**Hatched worms**



**Moth Emergence (10-12 days)**



**Young Larve (10 days)**



**Cocoons**



**Late age worms (14 days)**



**Cocoons on moutage (6 days)**

