

FUNCTIONING OF CENTRAL SILK BOARD & PERFORMANCE OF INDIAN SILK INDUSTRY

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CENTRAL SILK BOARD
(Ministry of Textiles, Govt. of India)
BANGALORE-560 068

FUNCTIONING OF CENTRAL SILK BOARD & NOTE ON SERICULTURE

A. FUNCTIONING OF CENTRAL SILK BOARD

The Central Silk Board (CSB) is a Statutory Body, established during 1948, by an Act of Parliament (Act No.LXI of 1948). It functions under the administrative control of the Ministry of Textiles, Government of India, having head quarter at Bangalore. The Board comprises 39 members appointed as per the powers and provisions conferred by Sub-Section 3 of Section 4 of the CSB Act 1948, for a period of 3 years. The Chairperson of the Board to be appointed by the Central Government and two officials to be nominated by the Central Government, one of whom shall be the head of the Silk Division in the Ministry of Textiles as the Vice-Chairperson and one shall be the Secretary of the Board, both being the officers not below the rank of Joint Secretary to the Government.

In order to co-ordinate the sericulture development programmes in different states & for undertaking pre-shipment inspection of silk goods meant for exports, the Central Silk Board has established 10 Regional Offices at New Delhi, Mumbai, Kolkata, Jammu, Hyderabad, Chennai, Bhubaneshwar, Guwahati, Lucknow, Patna and 3 Certification Centres at Bangalore, Varanasi & Srinagar. Regional Offices of CSB maintain a close liaison with the State Sericulture Departments, field units and CSB field functionaries to co-ordinate transfer of technology. Regional Offices are also conveners of State Level Sericulture Co-ordination Committee meetings constituted by the Central Silk Board. The existing staff strength of CSB is 3,154 as on 01.04.2017.

The mandated activities of CSB are Research and Development, maintenance of four tier silkworm seed production network, leadership role in commercial silkworm seed production, standardizing and instilling quality parameters in the various production processes and advising the Government on all matters concerning sericulture and silk industry. These mandated activities of Central Silk Board are being carried out by the 306 units of CSB located in different States through a integrated Central Sector Scheme viz **“Integrated Scheme for development of sericulture Industry”** with the following 4 components.

1. Research & Development, Training, Transfer of Technology and I.T. initiatives.
2. Seed Organization,
3. Coordination and Market Development.
4. Quality Certification Systems, Export, Brand Promotion & Technology Up-gradation.

1. RESEARCH & DEVELOPMENT, TRAINING, TRANSFER OF TECHNOLOGY AND I.T. INITIATIVES.

The main Research & Training Institutes of the CSB provide scientific and technological support for enhancing production and productivity for sustainable sericulture through innovative approaches. The main institutes at Mysore (Karnataka) Berhampore (West Bengal) and Pampore (J&K) deal with Mulberry sericulture whereas Ranchi (Jharkhand) deals with Tasar culture and Lahdoigarh, Jorhat (Assam) deals with Muga and Eri culture. Regional Sericulture Research Stations (RSRS/RTRS/RMRS) for Mulberry and Vanya

sericulture have been functioning for the development of region specific technology package and dissemination of research findings as per regional needs. Besides, a network of Research Extension Centre (RECs) & its sub units for mulberry and vanya silk are also functioning to provide extension support to sericulturists. In order to provide R&D support in post cocoon sector, the Board has established a Central Silk Technological Research Institute (CSTRI) at Bangalore. In addition, the CSB has also set up Silkworm Seed Technology Laboratory (SSTL) in Bangalore (Karnataka), Central Sericultural Germplasm Resource Centre (CSGRC) at Hosur (Tamil Nadu) and Seri-Biotech Research Laboratory (SBRL) at Bangalore.

During the year 2016-17, up to the end of March 2017 a total of 69 new research projects have been initiated and 50 projects have been concluded by various R&D institutes of CSB and currently a total of 130 research projects viz., 80 in Mulberry Sector, 37 in Vanya Sector and 13 in Post cocoon sector are under progress.

Research & Development (Highlights of Research Programmes)

(i) R&D on Host Plant (Mulberry):

- ❖ The third phase of the All India Coordinated Experimental Trials for Mulberry (AICEM) with four mulberry varieties viz., C2038, G4, Suvarna-2, Tr-23 have been completed and final report is under preparation. Preliminary analysis of the data indicated that G4, in South, C2038, in East and North regions, and Tr-23, in hilly areas, may be qualified for authorization.
- ❖ Announcement for Phase IV of AICEM has been made inviting applications from breeders across the country to initiate the trial from June 2017.
- ❖ A new mulberry variety PPR-1 with the advantages of early sprouting, greater rooting efficiency and enhanced leaf yield was released for commercial exploitation in temperate regions of Jammu and Kashmir.
- ❖ A new mulberry genotype C-13, having leaf yield potential of 1.27 kg/plant/yr with 18.8% yield improvement over S-1635 (1.066 kg) was developed.
- ❖ The genotype C-9 exhibited significant superiority for almost all the traits including foliage biomass among the 7 tested genotypes under normal and reduced dose of fertilizer (NPK).
- ❖ Identified low temperature stress tolerant mulberry genotypes with high leaf yield viz., C-108 (15.4 mt) C-384 (9.7 mt) and C-212 (9.2 mt).
- ❖ C-2028, a water logged tolerant mulberry variety is being popularized in West Bengal, Assam and other Eastern and North Eastern States.
- ❖ 1291 Mulberry Germplasm accessions are being conserved in the *ex situ* field gene bank.
- ❖ Moderate tillage with grass cover was found highest leaf producer (38.7 t/ha/yr) having the maximum “Carbon Sequestration Potential” of 6.9 t/ha/annum with 40.1 mg /ha/annum Soil Organic Carbon Stock (SOCS) and it is being tested at different agro-climatic conditions
- ❖ For effective management of mulberry pests, a mulberry pest incidence calendar for different agro-climates of Eastern and North Eastern regions was developed.
- ❖ Field evaluation of “Nemahari”, a bio-nematicide resulted in the reduction of root knot disease up to 80% with an improved leaf yield (15-18%).
- ❖ Assessing the area under mulberry in major sericulture districts of West Bengal using geo-spatial technique for better management.

- ❖ A new formulation consisting of botanicals and alternative fungicides was developed against root rot disease with an efficacy of 88-94% disease suppression. Evaluation trials are under progress at farmers' field in Andhra Pradesh and Tamil Nadu.
- ❖ Identified prophenol oxidase and prophenol oxidase activating enzyme (PPAE), transferrin, trypsin inhibitor, antitrypsin, ubiquitin conjugating enzyme, F-actin capping protein, nucleotide excision repair protein, hemolyn, humoral lectin, atlastin, antitrypsin isoform 3, hemocytin, DOPA decarboxylase, Autophagy – related proteins and inhibitor of apoptosis in uzi infested silkworms.
- ❖ Recorded the drought management practices being followed at farmers' level, identified the gaps and conducted awareness programmes for effective implementation of technologies.
- ❖ Identified low temperature stress tolerant mulberry genotypes with high leaf yield viz., C-108 (15.4 mt/yr) C-384 (9.7 mt/yr) and C-212 (9.2 mt/yr).
- ❖ Developed a formulation (Dr. Soil) for improvement of soil fertility, mulberry leaf yield and silkworm cocoon yield in association with M/s. Microbi Agrotech Pvt. Ltd., Bangalore

R&D efforts have helped in improving the mulberry productivity from 50 MT/Ha/year during 2005-06 to 58 MT/Ha/year during 2015-16 and cocoon productivity from 706 Kg/Ha. during 2005-06 to 750 Kg/Ha. during 2015-16.

(ii) R&D on Mulberry Silkworm:

- ❖ NPV resistant lines of CSR4 and CSR27 were developed by introgressing the RNAi mechanism from the transgenic silkworm Nistari. These lines of CSR4 and CSR27 showed higher resistance to NPV.
- ❖ Based on the presence or absence of the DNV resistant gene *nsd-2*, three silkworm breeds such as APS-5, APS-HTP5 and BBE198 were identified as DNV resistant.
- ❖ PCR based early detection system for pebrine and NPV has been developed.
- ❖ Developed three lines (MASN-4, 6 & 7) of NPV resistant CSR2 silkworm through introgression of NPV resistance and are being tested in different agro-climatic conditions of the country.
- ❖ Loop-Mediated Isothermal Amplification (LAMP), a simple technique for pebrine detection has been developed and is under validation trial.
- ❖ Identified the suitable breeding resource materials tolerant to high temperature and high humidity conditions and prepared the foundation crosses, further breeding work is under progress.
- ❖ The hybrids that were identified through Post Authorization programs such as CSR16xCSR17, MH1xCSR2 in south zone, FC1xFC2, M.con1xB.con4, M.con4xB.con4, M.con1xM.con4 in East and North-East, CSR46xCSR47 FC1xFC2 and APS5xAPS4 in North and North-West are under popularization for commercial exploitation.
- ❖ Bivoltine hybrids, FC3 x FC4 and CSR50 x CSR51 were popularized among the farmers. The average cocoon yield of 68.18 and 67.11 kg/100 dfls, against the national average of 58 kg/100 dfls respectively were recorded.
- ❖ Two new bivoltine hybrids viz., G11xG19 and B.con1xB.con4 with better yield and adaptation are in the 2nd year of the authorization trials. A total of 5,01,285 dfls were distributed to the farmers and the hybrid recorded

an average yield of 68.5kg/100 dfls in the southern states against the national average of 58 kg/100 dfls.

- ❖ A highly productive single hybrid, S8 x CSR16 was developed with cocoon yield potential of 70-80kg/100 dfls and characterized by high reelability, neatness, raw silk recovery and renditta, and it is ready for large scale testing.
- ❖ A new Bivoltine silkworm hybrid Gen-3 x SK6 having cocoon yield potential of 50-55 kg yield/100 dfls, and Multivoltine x Bivoltine silkworm hybrid M6DPC x (SK6 x SK7) with 45-50 kg yield/100 dfls were developed for Eastern region.
- ❖ Two improved crossbreeds, L3 x S8 and HB4 x S8 tolerant to high temperature and BmNPV were developed with a pupation rate of >90%, shell (20-21%) and raw silk (14-15%), further evaluation trials are under progress.
- ❖ Four thermo-tolerant silkworm lines were developed utilizing SSR markers (LFL0329 & LFL1123) associated with thermo-tolerance.
- ❖ Evaluation trials confirmed the safe employment of the 4, 6, 8 and 10 months hibernation schedules for preservation of the bivoltine silkworm breeds SK₆ and SK₇ and tropical univoltine race Barpat.
- ❖ 473 silkworm germplasm stocks (81 Multivoltine, 369 Bivoltine and 23 mutants) are being maintained through scheduled rearing.

R&D efforts have helped in improving the yield from 48 Kg/100 dfls during 2005-06 to 58 Kg/100 dfls during 2015-16.

(iii) R&D on Vanya Silk:

Vanya Host Plant

- ❖ Identified an alternative food plant *Lagerstroemia speciosa* for Tasar silkworm rearing, which is easy rooter and fast growing. Trials are on to validate the rearing performance.
- ❖ For selecting fast growing drought tolerant *Terminalia arjuna* accessions, 10 superior accessions (Accession No. 102, 115, 123, 135, 424, 507, 523, 525, 614 and 718) selected for further screening. Two Som accessions (S3 & S6) resistant to leaf spot disease, leaf blight and rust are being popularized in the field.
- ❖ Integrated Nutrient Management (INM) package developed for castor cultivation and it is under field testing.
- ❖ *Ailanthus grandis* (Borpat) has been established as the best perennial host plant for Eri silkworm rearing and recommended for field utilization.
- ❖ Package of practices is recommended for the efficient utilization of Sal flora in Jharkhand and also to improve the Laria productivity on Sal.
- ❖ Biochemical analysis proved similarity in the leaf biochemical of both Castor and *Alianthus grandis*.
- ❖ Two Som accessions (S3 & S6) resistant to leaf spot disease, leaf blight and rust are being popularized in the field.

Vanya Silkworm

- ❖ Tasar Daba bivoltine silkworm 'BDR-10' is under popularization.
- ❖ A new Tasar silkworm line "CTR-14" is under field testing.
- ❖ Eri silkworm breed 'C2' is under popularization.

- ❖ Two superior Muga silkworm lines CMR-1 and CMR-2 are under field testing
- ❖ Muga silkworm eggs preservation schedules developed to facilitate uniform hatching is under field testing.
- ❖ Field trial of eri eco race SR-025 at semi-arid conditions of Andhra Pradesh is under progress.
- ❖ Based on characterization, evaluation and categorization of wild sericigenous insects, *Antheraea frithi* has been selected as the future prospective species of the NE region.
- ❖ Six promising strains of eri silkworm viz., YP, YS, YZ, GBP, GBS and GBZ have been isolated from Borduar and Titabar ecoraces based on body marking and color. Two combinations viz. YZ x YS and GBS x GBZ are found promising based on rearing performance.
- ❖ The *in-situ* conservation for Muga and other wild silk moth's species is being done under NERTPS programme in four states viz., Assam, Meghalaya, Arunachal Pradesh and BTC.
- ❖ Developed an organic module against pest and diseases of muga silkworm.
- ❖ Characterized phylloplane and gut-bacteria from healthy silkworm.
- ❖ The longest embryonic developmental stage has been detected at the ages of 68 to 72 hr. old embryo which helps in developing suitable egg preservation schedules.
- ❖ Viral & bacterial pathogens associated with flacherie disease in *Antheraea mylitta* D. were isolated & identified.
- ❖ A new chemical disinfectant has been formulated for controlling bacterial flacherie disease in muga ecosystem and testing of the same under laboratory condition is under progress.

New Breeds/Varieties approved for popularization:

The silkworm breeds/hybrids authorized recently for commercial exploitation by the Hybrid Authorization Committee (HAC) are being popularized in the field. Important among them are:

#	New breeds/varieties	Region
Mulberry sector		
1	CSR50 x CSR51	For South zone
4	(CSR52 x CSR50) X (CSR51 x CSR53)	All India
5	N x (SK6 x SK7)	For Eastern zone
6	M6DP (C)x SK4	
Vanya sector		
7	BDR-10 (Tasar)	All regions suitable for tasar culture
8	C2 (Eri)	All regions suitable for Eri culture

(iv) R&D in Post Cocoon:

- ❖ Development & Demonstration of Indigenous Automatic Silk Reeling Machine (ARM) to produce superior quality import substitute silk.
- ❖ Demonstration of Solar powered low cost spinning machine that can be operated in rural areas by harnessing solar power.

- ❖ Developed the Reeliboost for improvement in cocoon reelability and is under laboratory testing.
- ❖ Popularization of Low cost eight end multi-end reeling machine for tasar silk reeling.
- ❖ In Vanya silk post cocoon sector Popularization Wet reeling of tasar and Muga cocoons, Sizing machine for tasar silk, Modified dry reeling machine for tasar cocoons, Pressurized hank degumming machine and Equipment for recycling of silk reeling water are being popularized in field.
- ❖ Demonstration of Pellade extraction and pupa separation machine to remove pellade layer from spent silkworm pupae.
- ❖ Developed different varieties of Chanderi sarees (Silk x Silk).
- ❖ Developed technology of “Use of Slug catcher (as replacement for porcelain button) for Slug removing” and is being field tested.
- ❖ Developed technology of “Yarn degumming using CSTRI Eco degumming machine” and is being field tested.
- ❖ Vertical Reeling Machine developed by the Institute has been fine-tuned and made 3 ends machine for higher productivity.
- ❖ Developed Mulberry, Tasar, Muga & Eri silk fabric reinforced with fibroin matrix.
- ❖ Eri silk nonwoven fabrics have been successfully prepared and trials on impregnation with cosmetic formulations for face mask application is under progress at L’OReal.
- ❖ Characterizing the sericin for its utilization in cosmetics (soaps, shampoos, hair creams, etc and as an additive for talcum powder) applications.
- ❖ Analyzed the shell contents of Railey tasar cocoon for developing efficient cocoon cooking methods using strong swelling agents and chemical treatments.
- ❖ A new tasar cocoon cooking recipe *i.e.*, a combination of Borax and Sodium Bicarbonate developed for Daba, Raily and Modal cocoons was found to be techno-economically feasible with 67% silk recovery and 33% reelability.
- ❖ Developed diversified silk knit wear products/ garments.

R&D efforts have helped in improving the Renditta from 8.2 during 2005-06 to 7.4 during 2015-16.

(v) Patents & Commercialization:

a. Patents obtained:

1. Automatic Tasar cocoon sorting separating machine

b. Applications filed for patenting:

1. Tray washing cum disinfection machine
2. Tasar wet reeling machine
3. Two bobin wet winding machine
4. Process for enhancing cocoon reelability using Reeliboost
5. Process for the utilization of spent silk moth for producing value added by-products.

c. Technologies/products commercialized:

1. A machine for harvesting silkworm cocoons from plastic collapsible mountages

2. Ankush-an eco-friendly silkworm body and rearing sheet disinfectant
3. Poshan- a multinutrient formulation for correcting the nutrient deficiencies in mulberry

(vi) Collaborative Research Projects and Biomaterial Research:

- 1) The R&D institutes of CSB, in addition to the in-house funded projects, are also carrying out collaborative research projects with the financial assistance from DBT, DST, PPV and FRA, ILRI Ranchi etc. During 2016-17, a total of 13 research projects with external funding are being carried out.
- 2) CSB Institutes also collaborate with other research Institutes such as IIT Kharagpur, IARI New Delhi, CCMB Hyderabad, IISc, Bangalore, NIFT Tirupur, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala, BTRA Mumbai, Coir Board, GKVK Bangalore, ICAR-NBAIR, Bangalore, NEIST Jorhat, TERI Bangalore, NBSS&LUP, Jorhat, BIT Mesra, NCL Pune, etc. At present, 15 such projects are being carried out in collaboration with some of these institutes.
- 3) International collaboration with different institutes has also been undertaken. Three projects with Deakin University, Australia for developing technology on post cocoon technology and another project aiming at developing DNV resistant silkworm has already been initiated with Japan while another project is being carried out with Bulgaria on breed improvement.
- 4) MOU has been made with research institutions in Bulgaria, Japan, China, Romania, and Uzbekistan & Australia for exchange of Genetic material to improve hybrid vigor.

Training

The R&D institutions of CSB, spread across the country, covering all activities on the silk value-chain pertaining to all the four silk sub-sectors, are intensively involved in training, skill seeding and skill enhancement on a sustainable basis.

From the year 2015-16 onwards, CSB's capacity building and training initiatives have been restructured under the following five heads to be implemented and monitored by the Capacity Building & Training Division:

(i) Skill Training & Enterprise Development Programmes (STEP):

Under this category a variety of short-term training modules focusing on Entrepreneurship development, In-house and industry Resource Development, Specialized Overseas Training, popularization of sericulture technologies, lab to land technology demonstration programmes, training impact assessment surveys etc have been planned to be taken up. Some of the popular programmes under this component are:

(ii) Establishment of Sericulture Resource Centre (SRC):

These training cum facilitation centres are established in select Mulberry Bivoltine & Vanya clusters with a unit cost of Rs.3.50 lakhs to act as an important link between Extension Centres of R&D labs and the beneficiaries. The purpose of these SRCs is - technology demonstration, skill enhancement,

one-stop shop for Seri-inputs, doubt clarification and problem resolution at cluster level itself.

(iii) Capacity Building & Training by R&D Institutes of CSB: In addition to conducting structured long-term training programme (Post Graduate Diploma in Sericulture) the R&D institutes of CSB will also conduct technology-based training both for farmers and other stakeholders besides organizing Krishi Melas, Farmer's day, farmer's interaction workshops etc. for empowering the framers and other industry stakeholders.

(iv) Capacity Building in Seed Sector: Silkworm seed is the most critical sector that drives the entire silk value chain. The quality of seed determines the quality of industry output. Therefore addressing the capacity building and training needs of this sector is of paramount importance. It is proposed to conduct a variety of training programmes to cover industry stakeholders like – Pvt. Silkworm Seed Producers, Adopted Seed Rearers, Managers and work force attached to Govt. owned grainages.

(v) Information, Education and Communication (IEC):

IEC is meant for supporting Capacity Building and Training initiatives by popularizing recommended technologies though Brochures, pamphlets, handouts, booklets etc. This component also propose to produce technology based instructional videos, study materials and documentary films to show case the industry.

Table below shows details of number of persons trained under programmes organized by the Research & Training Institutes of CSB during during XII Plan period (2012-13 to 2016-17) is given below:

#	Training courses	No. of persons Trained							
		2012-13	2013-14	2014-15		2015-16		2016-17	
				Target	Achmt.	Target	Achmt.	Target	Achmt.
1	Structured Courses (PGDS, Mulberry & Non-Mulb. Courses)	47	45	50	33	100	85	100	111
2	Farmers Skill Training, Technology Orientation Programmes, Capsule & Adhoc Courses and Exposure Visit	12474	6768	6500	6642	8885	11798	9400	9034
3	Other Training Programmes	1632	2824	3000	3941	1000	1194	4000	6628
4	STEP	1385	852	650	484	895	909	1500	917
5	Integrated Skill Development Scheme (ISDS)	2233	8235	9704	6689	Programme discontinued			
	TOTAL	17771	18724	19904	17789	10880	13986	15000	16690

Transfer of Technology (TOT):

The technologies emanated out of the concluded projects are being effectively transferred to the field through various extension communication programmes viz, Krishimelas, Group Discussions, Enlightenment programmes, Field Days, Farmers' Meet, Audio Visual programmes, Technology demonstrations etc. During 2016-17, up to the end of March 2017, a total 2040 ToT programmes

have been organized and 46 technologies were transferred effectively to the user level under pre-cocoon sector. Further, in post cocoon sector a total of 2291 field programmes/ technology demonstrations were conducted and 107265 cocoon and silk samples have been tested and provided the results.

(i) Implementation of Cluster Promotion Programme for Bivoltine silk:

During XII Plan, the foremost thrust to augment the import substitute silk in the country and to increase the production of BV silk to 5000 MT from the production level of 1985 MT (2012-13). To achieve the target, Central Silk Board in association with State Sericulture Departments has organized 172 Bivoltine Clusters.

With the joint concentrated efforts, 4613 MTs of Bivoltine raw silk has been produced against a target of 4500 MTs during 2015-16 i.e. 743 MT (19.2 %) in excess against 3870 MT produced during the year 2014-15, 63.56% (2932 MT) of the total BV raw silk production (4613 MT) is achieved through Clusters.

During the year 2016-17 (up to February-2017) 4563 MT of bivoltine raw silk production has been recorded against the total bivoltine raw silk target of 5260 MT, out of which 2980 MT (65%) of Bivoltine silk has been produced by clusters.

(ii) Implementation of Cluster Promotion Programme for Vanya silk:

50 clusters (45 clusters in pre-cocoon and 5 clusters in post cocoon sectors) to produce 400 MT Vanya silk have been identified. Due to closure of CDP scheme from the year 2015-16, target were reduced and restricted to Tasar sector. The VCPP program is proposed to be implemented jointly by CSB units in close coordination with concerned State DOS, by utilizing the funds allocated under the restructured Central Sector Scheme (CSS). The Director of CTRTI, Ranchi and BTSSO, Bilaspur has been entrusted to monitor the implementation of those clusters in close coordination with respective State DoSs. At present, 22 clusters in Tasar sector have been identified in different Tasar producing States under CSS. Benchmark survey, diagnostic studies have been completed. Orientation Workshop organised for building awareness and capacity building of CDFs and State officials to take off implementation process. The Central assistance released to the states to start implementation of Vanya Cluster Programme in all the states. Detailed guidelines issued for implementation of the programme and committee at Cluster level, State level and Institute level have been constituted for expediting the implementation and review of the progress of the programme periodically.

Each cluster is proposed to be supported with 60 Adopted seed Rearers and 15 private graineurs along with support for capacity building, door to door service for field disinfection and mobile testing units during 2015-16 for supporting quality seed production. GOI assistance amounting to Rs 12.6 crores to support 1853 beneficiary under the programme was released to respective State Govts. and funds amounting to Rs 74.474 lakh were released to Director (s), CTRTI, Ranchi and BTSSO, Bilaspur towards capacity building of beneficiaries, study tour and awareness programme, for implementing the VCPP programme.

Under the said programme, 1226 beneficiaries were covered under Capacity Building, Exposure Visit, Door to Door service and awareness programme on Technology transfer. Further, 1.79 Lakh DFLs were brushed by Adapted Seed Rearers (ASRs) in Seed crop (1st crop) and produced 47.75 Lakh Seed cocoons,

these seed cocoons were processed by 125 Private Graineures and produced 5.0 Lakh DFLs of which 3.41 Lakh DFLs were reared by farmers in Commercial crop (2nd crop) in the clusters and produced 87.35 Lakh cocoons. Remaining 1.59 Lakh DFLs were supplied to the farmers outside the cluster for commercial rearing. The harvest details from some of the clusters are awaited.

(iii) Japan Overseas Cooperation Volunteers (JOCV) under JICA:

CSB in association with JICA has taken up many programmes since 1991 for sustainability of Bivoltine in India. CSB under phase-1 of JICA programmes has developed suitable Bivoltine Breeds, Mulberry varieties and a comprehensive Bivoltine Sericulture Technology package suitable for multiplication/ replication to Indian Conditions. These technologies were field tested during second phase of the programme and during third phase a comprehensive Extension System was developed. The same is under multiplications in India through CPP. and is expected to achieve the XII plan target of 5000 MT smoothly. Besides During 2012-14, under JICA Follow-up cooperation programme, JICA has recommended to strictly follow one-way multiplication of basic seed for quality maintenance and adopt JICA recommended technology for race maintenance to maintain the race characters and also recommended to strictly use Rotary Mountages Technology with net collection techniques for quality silk production. On Post Cocoon Sector, with JICA support, an indigenous made Automatic Reeling Machine has also been developed and efforts have been made to improve it through induction of Harada water Ejection System with the help of JICA Experts and will be completed by March 2015.

For sustainable growth of Bivoltine silk, in addition to the Cluster approach, efforts have been made to introduce Community Based Organizations (CBOs), Self Help Groups (SGHs) amongst the farmers to carry out knowledge /technology transfer amongst the farmers, besides to the existing extension activities. group activities, credit facilitations, thrift and better price realizations. To supplement our efforts JICA has decided to depute 6 Japan Overseas Cooperation Volunteers (JOCV) under JOCV programme to work in association with CSB/DoSs CDFs in 10 clusters (8 in Karnataka, Andhra Pradesh & Tamil Nadu and two in Uttarakhand) three years from January 2015. The main objective of JOCVs are to support CSB/State Counterparts in Bivoltine Clusters to identify the field problems, assist in Extension methodology in organizing Self Help Groups/ CBOs involving sericulturists for effective technology transfer identified Clusters. Three JOCVs have completed their assignment on March 2017 and expected their replacement shortly.

I.T. Initiatives:

- ❖ **mKisan:** CSB has widened the outreach of scientists and experts to disseminate information to provide scientific advisories to farmers through their mobile telephones using mKisan Web Portal.
- ❖ **‘SMS service’** through mobile phone on day-to-day market rates of Silk and Cocoons for the use by the farmers and other stakeholders of the industry. Both PUSH and PULL SMS services are in operation. All the registered **4076** farmers are receiving SMS messages on daily basis.

- ❖ **Data Warehousing :** CSB has initiated steps to have web portals for all the Main Research Institutes, thereby, dissemination of information becomes more efficient and effective. Also, helps in gathering relevant data through database packages, which will be used for decision making.
- ❖ **SILKS Portal:** Sericulture Information Linkages and Knowledge System portal has been developed in association with North Eastern Space Application Centre, Dept. of Space by capturing geographical images through satellite and used for analysis and selection of potential areas for promoting Sericulture activities in those areas. Multi lingual, multi district data is being updated regularly.
- ❖ **SERI-5K** database has been designed and developed to maintain and manage Bivoltine cluster farmers throughout the country.
- ❖ **Video Conference:** CSB has full fledged Video Conference facility at CSB Complex, Bangalore, CSR&TI, Mysore & Berhampore, CTR&TI, Ranchi, CMER&TI, Lahdoigarh, New Delhi and CSR&TI, Pampore.
- ❖ **CSB website:** Central Silk Board has a website “csb.gov.in” in bi-lingual English and Hindi. Maximum information is disseminated through this portal for the benefit of common citizen, who may need to know about the organisation as well as schemes and other details. Publicity of sericulture plan programmes, achievements and sharing of success stores are featured in the website.
- ❖ **On-line applications:** Central Silk Board is accepting online applications for various posts, making it easy and effective for job aspirants to submit their applications. This will also lead to an efficient processing of applications with various conditions and complete the process in time.
- ❖ **AEBAS:** Aadhaar enabled bio-metric attendance system is being implemented at Central Silk Board. Over **4590** employees including farm workers have registered into the attendance portal. 179 units where 5 or more officials are working are in the process of procuring and implementing AEBAS devices.
- ❖ **FRDB:** Farmers and Reelers data base is designed and developed to have database of Farmers and Reelers at national level, which will help policy makers with appropriate information for effective decision making. As on March-2017, 1,48,453 farmers and 1533 reelers details have been recorded by the States in the database.

2. SEED ORGANISATION

The CSB has a chain of Basic Seed Farms supplying basic seeds to the States. Its commercial seed production centers augment efforts of the States in supplying commercial silkworm seed to farmers.

The Table below indicates the total quantity of seed production during XII Plan period (2012-13 to 2016-17).

(Unit: Lakh dfls)

Particulars	2012-13	2013-14	2014-15		2015-16		2016-17	
	Achmnt.	Achmnt.	Target	Achmnt.	Target	Achmnt.	Target	Achmnt.
Mulberry	308.48	338.57	350.00	370.16	375.00	410.50	390.00	430.10
Tasar	39.74	38.44	44.11	42.46	47.14	51.62	47.43	48.60
Muga	4.87	5.00	6.07	6.11	7.26	7.45	8.13	6.87
Eri	4.21	3.61	4.10	5.69	4.52	5.75	5.5	4.78
Total	357.30	385.62	404.26	424.42	433.92	475.32	451.06	490.35

3. COORDINATION AND MARKET DEVELOPMENT.

Central Silk Board administration includes Board Secretariat, Regional Offices, Certification Centers and Raw Material Banks. The Board Secretariat of CSB monitors the implementation of various schemes and coordinates with Ministry and States in implementation of various projects in sericulture sector. Several National meetings, Board meetings & Review meetings and other high level meetings are being carried out by the Board Secretariat. The Raw Material Banks operate floor price to stabilize the market price of cocoons to ensure remunerative price to primary producers.

Raw Material Bank (RMB) for Tasar at Chaibasa (Jharkhand) along with 4 Sub-depots, one each at Raigarh (Chhattisgarh), Bhagalpur (Bihar), Warangal (A.P) and Bhandara (Maharashtra) and Muga Raw Material Bank (MRMB) for Muga at Sibsagar in Assam with 3 Sub-Depots, at Dhakuakhana, Sualkuchi (Assam) and Coochbehar (W.B.) are functioning with the primary objective of ensuring economic and fair price to the actual Tasar & Muga cocoon producers.

The details of procurement and sale made by RMB & MRMB and its Sub-depots during XII Plan period (2012-13 to 2016-17) is given below:

(Unit : Qty.in lakh Nos. & Value in Lakh Rs.)

Year	RMB (Tasar)				MRMB (Muga)			
	Procurement		Sale		Procurement		Sale	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
2012-13	247.64	177.36	222.87	159.99	4.47	6.33	4.47	6.58
2013-14	248.65	267.30	240.78	232.50	6.47	10.11	6.47	10.49
2014-15	180.35	192.60	237.70	306.11	5.42	9.40	5.20	8.27
2015-16	183.63	210.02	169.08	201.21	1.02	1.38	1.02	1.41
2016-17	200.76	287.10	171.68	229.88	1.55	2.77	1.55	2.92

PRODUCT DESIGN, DEVELOPMENT AND DIVERSIFICATION (P3D)

The activities under Product Design Development Diversification (P3D) are to give special focus on fabric engineering, silk blends, designing new fabric structures, design and development of new products in silk and silk blends, product development in the clusters, commercialisation of developed products, assisting the commercializing partners in providing backward linkage, technical know-how and assisting/coordinating in sample development.

Activities of P3D:

- Revival of Traditional Silk Products

- Design development and diversification of products with blends
- Product development based on certain identified preferences and requirement in terms of both their design and end uses
- Generating market information, updating market data and forecasting fashion trends.
- Generic and Brand promotion of Indian Silks by organising theme pavilions and display of products in silk expos /exhibitions.
- Assist silk manufacturers and exporters in development of innovative designs and fabrics in tune with the market demand.
- Display of latest developments in silk products and ultimately to create a Centre of excellence for innovations in Indian Silks.

Products Developed:

1. Muga Satin fabric on power loom and Garments
2. Eri silk denim fabrics for Blazer and garments, Eri and Mulberry knits, Eri silk blanket and carpet & Eri silk thermal wear.
3. Tasar silk fabric on power loom for bridal dress.
4. Pure silk sarees and Fabrics in Chanderi cluster
5. Kanchipuram sarees with, Muga silk in designing
6. Stain guard and Aroma treated sarees
7. Silk life style products – Ladies purse, bags, socks, glouse, accessories
8. Silk sarees / fabrics printed in Bagh (MP) cluster
9. Products with traditional Lambani art work
10. Mulberry X Eri sarees with Bomkai Design
11. Mulberry saree with Nagaland tribal motif and Silk /linen, silk / cotton, silk / modal fabrics

4. QUALITY CERTIFICATION SYSTEM, EXPORT BRAND PROMOTION & TECHNOLOGY UPGRADATION

One of the main objectives of the Quality Certification System is to initiate suitable measures towards strengthening quality assurance, quality assessment and quality certification. Under the scheme, two components viz. “Cocoon and Raw Silk Testing Units” and “Promotion of Silk Mark” are being implemented. Quality of cocoons influences the performance during reeling and quality of raw silk produced. Cocoon Testing Centers which have been established in different cocoon markets with the support under CDP/CSS facilitate cocoon testing. The network of Certification Centre of Central Silk Board attached to the Regional Office carryout voluntary pre-shipment inspection of silk goods meant for export to ensure quality of silk goods exported from India.

Besides, Central Silk Board is popularising “Silk Mark”, for purity of silk products through the Silk Mark Organisation of India (SMOI). “Silk Mark”, an assurance label, protects the interests of the consumers from the traders selling spurious products in the name of pure silk.

The progress achieved under the Silk Mark Scheme during the XII Plan period (2012-13 to 2016-17) is given below:

Particulars	2012-13	2013-14	2014-15		2015-16		2016-17	
	Achmnt.	Achmnt	Target	Achmnt	Target	Achmnt	Target	Achmnt
Total No. of new Members enrolled	267	302	250	285	250	272	300	250
Total No. of Silk Mark Labels sold(Lakh nos.)	25.57	27.32	28.0	25.50	25.00	27.00	30.00	25.53
Awareness Programmes/ Exhibition/ Fairs/ Workshop/ Road shows	410	518	360	430	390	410	450	622

(i) Silk Mark Expos

In order to ensure that Silk Mark gains further credibility & popularity, Silk Mark Expos are being organized exclusively for Silk Mark Authorized Users from across the country. The Expo is an ideal platform not only to popularize Silk Mark but also in bringing the manufacturers and the consumers under one platform for buying and selling of pure silk products. Substantial business for the participants is generated during this event. During the event massive awareness and publicity campaigns are carried out by the SMOI.

During the year 2016-17 (from April 2016 to March 2017), in view of the sluggish market for silk products and poor response from the Authorised Users, SMOI has organised only 6 (Six) Silk Mark Expos at Guwahati, Bangalore, Kolkata, Guwahati NE, Hyderabad and Lucknow. More than 38,000 consumers have visited these Expos and a business turnover of Rs 660 Lakhs was generated by the participating Authorised Users of Silk Mark in these expos.

(ii) Brand Promotion & Technology Up-Gradation

During XII Plan, a new component “Export/Brand Promotion & Technology Up-Gradation” was conceived for the year to be implemented by SMOI & ISEPC. However the scheme Indian silk brand promotion has been implemented only for 2 years for 2013-14 & 2014-15 with interaction with all the stake-holders, exporters, importers, fashion designers etc.

This scheme has been discontinued from the year 2015-16 and some of the components of the scheme were merged with the existing Quality Certification System of Central Silk Board for the remaining part of the plan period.

Some of the promotional activities undertaken during the period are:

- SMOI, New Delhi Chapter has participated in international exhibition “Heimtextil India 2016” held at Pragathi Maidan, New Delhi from 22nd to 24th June 2016. An exclusive theme pavilion has been organized to show case the progress and activities of Silk Mark and Central Silk Board.
- An exclusive Theme Pavilion based on living room concept has been set up in “5th India International Silk Fair”, a platform for the exporters of silk products, held from 15th to 17th October 2016 at Pragathi Maidan, New Delhi. Hon’ble Union Minister for Textiles, Smt. Smriti Zubin Irani, & Smt. Rashmi Verma, Secretary Textiles and a number of dignitaries from India & abroad visited the pavilion.

- SMOI has organized one awareness programme for the members of “IAS Officers Wives Association” (IASOWA) at Dr D.S.Kothari Auditorium, DRDO Bhawan, Rajaji Marg, New Delhi on 23rd November 2016. Smt. Roopa Sinha, President, wife of Sri P.K.Sinha, Cabinet Secretary, GoI and Smt. Renuka Sant, Secretary, IASOWA have taken a lot of interest in co coordinating & organising the programme. An exclusive power point presentation on the entire gamut of silk, silk care, silk maintenance & Silk Mark was presented to the audience and explained in detail about the character of different textile fibres & practically shown the identification test of silk, cotton, polyester etc., A quiz consisting of 15 questions on silk was arranged for all the members and 3 lucky winners selected among those ticked the correct answer. The members of IASOWA took active participation in exclusive live demonstration show of pure silk sarees selected from 12 different weaving clusters. Three Authorised Users of Silk Mark viz; M/s Prapun, M/s Khadhi Silk Emporium and M/s V.F.Handlooms have displayed a wide range of pure Silk Sarees, Dress Materials and Readymade Garments and done a good business.
- 15 Hoardings of 20X 10 ft (200 sq. ft.) for 3 months duration and 100 Tree Guards for 2 months duration have been put up at prominent locations of New Delhi for the promotion of Silk Mark. The visibility of Silk Mark has increased manifold with these Hoardings & Tree Guards at New Delhi.
- Silk Mark has undertaken collaborative venture with Andhra Pradesh Handloom & Handicraft Corporation Ltd (LEPAKSHI), Govt. of Andhra Pradesh to promote exclusive Silk Mark store, “Resham Ghar -Home of Pure Indian silks”, and Authorised users from different silk clusters as participants. This store is having collections of pure silk merchandise from different clusters and can cater to the consumers’ demands throughout the year. These stores have been refurbished with increased media publicity through print and electronic has contributed to improved business turnover during this year.
- Cine celebrity Ms Vidya Balan has graciously agreed to promote Silk in general and Silk Mark as BRAND AMBASSADOR. The still photo & video film shooting, editing, dubbing in 9 regional languages and other post production work of the Audio Visual promos of Ms. Vidya Balan, renowned actress was completed. The campaign on promotional launch ads of Ms. Vidya Balan has been vigorously taken up in systematic way both in print & electronic media. The 40 secs video film of Silk Mark featuring Ms Vidya Balan has been widely telecast through Multiplexes, Hi End PVR Cinemas at major cities and regional & national TV Channels.
- SMOI has established a testing centre for silk stakeholders like consumers, weavers & traders in Sualkuchi, a silk weaving cluster located in the North-eastern state of Assam. The centre was established as a collaborative venture with an NGO dedicated to the welfare of the weavers & traders of Sualkuchi. More than 7750 samples have been tested for fibre purity & identification. SMOI will establish similar silk testing centres in collaboration with KHDC, a Govt. of Karnataka undertaking, in their ‘Priyadarshini’ outlets & M/s. Karnataka Silk Cloth Retail Merchants Association, Chickpet in Bengaluru,
- An exclusive programme namely “Colours of Independence” to create awareness about the importance of independence has been organized from 9th to 15th August 2016. The huge cloth canvas has been put up at 4 important locations viz. Lalbagh garden, CSB Corporate office, M.G. Road

and Karnataka Chitrakala Parishath across Bangalore for the public to express their thought & ideas about the Independence. Sri Anant Kumar Minister of Parliamentary Affairs has also visited and expressed satisfaction over the response for the event.

- A theme pavilion has been established on 18 sq.mtr stall space depicting the achievements of SMOI and live demonstration of life cycle of Mulberry & Tasar silk worms, in the “Destination Uttarkand” organized at Dehradun from 24th to 26th October 2016.
- SMOI Palakkad participating in the International Craft Fair at Iringal, Kozhikode for 13 days from 18.12.2016 to 30.12.2016 organised by Sargaalaya, an initiative of Dept. of Tourism. A theme pavilion arranged displaying different Mulberry plants, live display of all the stages of silk worms, yarns & all four varieties of silk fabrics & garments. The craft fair was inaugurated by Shri Pinarayi Vijayan Hon’ble Chief Minister of Kerala. Sri Kadakmapalli Surendran, Minister for Tourism and Sri. T.P.Ramakrishnan Minister for Excise was the guests of honour in the fair which was witnessed by nearly 1.0 lakh peoples.
- SMOI participated in the “14th Pravasi Bharatiya Divas” organized by Ministry of External Affairs and Government of Karnataka, at Bangalore International Exhibition Centre (BIEC) from 7th to 9th January 2017 by putting up a theme pavilion displaying newly developed silk products and various activities of Silk Mark & Central Silk Board. The immense business opportunities available in the sericulture industry explained to the entrepreneurs, exporters & importers from India & abroad. Sri R.V.Deshapande Minister for Higher Education & Tourism Govt. of Karnataka, Sri V.K.Singh Union Minister of State for External Affairs and Sri Priyank Kharge Minister IT & BT, Tourism, Govt. of Karnataka and many other dignitaries from Govt. of India & Karnataka have visited the theme pavilion and appreciated the efforts by the CSB.
- SMOI, participated in the Lalbagh Flower Show organised by Karnataka Horticulture Department, at Bangalore from 20th to 29th January 2017. Two nos. of Silk Mark colorful logo has been depicted in the theme pavilion erected inside the Glass House. More than 10 lakhs visitors thronged the SMOI pavilion in Lalbagh flower show and appreciated the efforts taken by Silk Mark.
- SMOI organised a grand theme pavilion in the exhibition “North East Investment Summit” at Shillong, capital of Meghalaya to demonstrate the major sericulture activities of CSB and availability of immense business & investment opportunities in the North East region silk sector. The exhibition has been jointly organised by CII, CSB and NEHDC on 29th, 30th January 2017 for 2 days. Smt. Smriti Zubin Irani, Union Minister of Textiles and many dignitaries from the central ministry and state governments visited the theme pavilion
- The XIII Agricultural Science Congress on “Climate Smart Agriculture” has been organised at Gandhi Krishi Vigyana Kendra (GKVK), University of Agricultural Sciences, Bengaluru and in co ordination with National Academy of Agricultural Sciences (NAAS) New Delhi. SMOI participated in this mega event from 21st to 24th February 2017 and a grand theme pavilion highlighting the various activities of Central Silk Board and Silk Mark concentrating on the theme of the congress viz. “Climate Smart Agriculture” has been created. Sri Krishna Byre Gowda, Minister of

Agriculture, State of Karnataka, several dignitaries from different states, Policy makers, Academic personnel and students visited the stall and appreciated the efforts of the CSB & Silk Mark. A range of newly developed Vanya silk products were also on display for the benefit of the visitors.

- The third edition of Srimathi Silk Mark – Vizag was organized by Hyderabad Chapter of SMOI with much fanfare at VUDA Children's Arena on 5th March 2017 coinciding with 'International Women's day. Famous Indian Shuttle player and Arjuna Awardee Ms. Jwala Gutta and Singer, Anchor, Film Fare & Famous Nandi award winner Ms. Sunitha Upadrashta graced the occasion. The Chief Guest Shri Ghanta Srinivasa Rao, HRD Minister, State of Andhra Pradesh stressed the importance of buying silks with Silk Mark Labels and protection from duplicates. Highlight of the event was fashion show depicting the innovative products designed and developed by P3D, CSB, Bangalore. The Winner of Srimathi Silk Mark Visakhapatnam pageant- 2017 is Mrs Hima Bindu, Title Winner, Mrs Namratha, First Runner Up, and Mrs Susheela second Runner Up.
- The Srimathi Silk Mark 2017- Hyderabad Pageant was organised in Ravindra Bharathi Auditorium, Hyderabad on 9th March 2017 by Hyderabad Chapter, SMOI. The event was inaugurated by Sri B Venkatesham, IAS, Secretary to Government of Telangana and the guest of Honour is eminent Kuchipudi classical Dance exponent, Kalarathna Smt. Deepika Reddy. The high light of the event is the introduction of Vanya Silk Products through fashion show. Winner of the crown Smt. Anupreet Kaur, the first runner up is Ms. Pallavi Joshi Tonpe and second runner up is Ms. Kaveri Reddy.
- SMOI, Mumbai Chapter has successfully organized the Design contest for the young, budding designers & students of fashion institutes using the Vanya Silk Products on 24th & 25th January 2017. Three winners were selected based on the exclusive dress made out of Vanya silk products awarded with the prizes.

On a similar line, designer meet on the commercial utilization of Vanya Silk products has been organized at Chennai on 19.02.2017 & at Guwahati on 29.07.2016 by SMOI, Chennai Chapter & SMOI, Guwahati Chapter respectively.

5. FINANCIAL PROGRESS

A. Plan & Non-Plan:

The table below indicates year-wise financial performances of the Central Silk Board during the XII Plan (from the year 2012-13 to 2016-17) are given below:

(Cr.Rs.)

BUDGET HEADS	2012-13 Expnd.	2013-14 Expnd.	2014-15		2015-16		2016-17	
			Allocation	Expnd.	Allocation	Expnd.	Allocation (RE)	Expnd.
NON PLAN	255.69	264.47	279.17	279.17	306.09	302.08	342.50	342.50
PLAN	258.00	374.85	297.58	297.94	178.10	178.10	154.01	154.01
Total	513.69	639.32	576.75	577.11	484.19	480.18	496.51	496.51

B. Plan Schemes:

Financial Allocation and Expenditure incurred by CSB towards implementation of major Schemes and Programmes of CSB during XII Plan (from the year 2012-13 to 2016-17) are given below:

(Cr.Rs.)

#	Programmes of CSB	XII Plan Allocation	2012-13 Expnd.	2013-14 Expnd.	2014-15 Expnd.	2015-16 Expnd.	2016-17	
							Allocation	Expnd.
1	Research, Development, Training & IT Initiatives	203.71	30.25	37.97	44.50	--	--	--
2	Seed Organisation	119.08	11.58	26.64	30.56			
3	Coordination & Market Development (HRD)	40.35	7.96	7.18	9.02			
4	Quality Certification System & Export/Brand promotion & Tech.upgradation	16.85	3.05	7.30	0.86			
5	Catalytic Development Programme (CDP)	889.00	205.16	295.76	213.00	178.10	154.01	154.01
6	Integrated Scheme for Development of Silk Industry	--	--	--	--			
Grand Total		1269.00	258.00	374.85	297.94	178.10	154.01	154.01

6. OTHER SCHEMES**A. CONVERGENCE EFFORTS:**

The Ministry of Textiles is extending support to the sericulture sector in the form of CSS & NERTPS. Efforts are made for further by mobilizing additional funds through convergence, by availing the financial support from other schemes (RKVY & MGNREGA etc.) being implemented by various other Ministries of Govt of India. As per the latest reports received from States, during the financial year 2015-16 States have submitted proposals for Rs.1092.25 crores and received sanction for an amount of Rs.645.47 crores and received funds worth Rs.351.68 crores. During the financial year 2016-17 States have submitted proposals for **Rs.810.75 crores** and received sanction for an amount of **Rs.655.10 crores** and received funds worth **Rs. 225.17 crores**.

B. MAHILA KISAN SASHAKTIKARAN PARIYOJANA (MKSP):

Building on the successful models developed under special SGSY Projects in Bihar and Jharkhand for replication, CSB and MoRD came up with the idea of undertaking multi-state ventures involving Society for Elimination of Rural Poverty, Govt of Andhra Pradesh/Telangana (SERP), Bihar Rural Livelihood Promotion Society (BRLPS)), Govt. of Bihar, PRADAN, BAIF and Kovel Foundation under the Mahila Kisan Sashatikaran Pariyojana (MKSP) – Non-Timber Forest Produce (NTFP), a subcomponent of National Rural Livelihood Mission (NRLM). The eight projects envisage to cover 36117 mahila kisans

(26094 in tasar sector) from 23 districts in 8 states at an outlay of Rs. 71.60 crores shared by MoRD and CSB (75:25). The project envisages to raise 3503 ha of tasar host flora, rejuvenation of 9468 natural tasar flora, to establish capacities to produce 6.75 lakh dfls of basic seed, 59.35 lakh dfls commercial seed & 16.09 crore reeling cocoons besides nurturing 478 CRPs for upscaling programmes.

Financial Progress: MoRD has released Rs. 29.34 crores to CSB under multi state project of which Rs. 24.536 crores have been released to the PIAs, who have utilized Rs.15.028 crores (61.250%) as on 31st March 2017. CSB has also released Rs. 11.300 crores (CDP share) to all the PIAs including SERP, AP & BRLPS of which Rs.9.781 Cr. has been utilized.

Physical Progress: A total of 26893 farmers were covered (78.43%-ST, 5.47%-SC and 16.1%-minorities) in 828 hamlets, 692 revenue villages, 60 blocks and 26 districts of the Project states. Under the projects, 1470.24 ha. of block plantations were raised by 2626 farmers. 1861 seed rearers brushed 5.463 lakh dfls of basic seed procured from BTSSO and BSPUs under special SGSY Projects, to produce 134.69 lakh seed cocoons @ 24.66 seed cocoons per dfl. 303 nucleus seed rearers brushed 94000 dfls of nucleus seed to produce 62.13 lakh seed cocoons @ 66.6 seed cocoons per dfl. 240 private graineurs processed 111.27 lakh seed cocoons and produced 24.67 lakh commercial dfls @ cocoon:dfl ratio of 4.5:1 and 10728 commercial rearers brushed 28.27 lakh dfls procured from the private grainages of MKSP/special SGSY projects/DOSs, to produce 937.67 lakh reeling cocoons @ 332 cocoons per dfl.

C. SCHEDULED CASTE SUB-PLAN (SCSP)

The project namely “**Empowerment of Scheduled Caste families through Sericulture under Scheduled Caste Sub-Plan (SCSP)**” has been implemented in coordination with State sericulture departments/ other implementing agencies during the year 2016-17. The project has been covered in the States of Andhra Pradesh, Jammu & Kashmir, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Panjab, Telangana, Uttar Pradesh, Uttarakhand, West Bengal. So far (upto December 2016), an amount of Rs. 22.73 Crores has been released to the States for implementation of SCSP.

D. TRIBAL SUB-PLAN (TSP)

The project namely “**Empowerment of Scheduled Tribe families through Sericulture under Tribal Sub-Plan (TSP)**” has been implemented in coordination with State sericulture departments/ other implementing agencies during the year 2016-17. The said project has been implemented in the States of Andhra Pradesh, Jharkhand, Chhattisgarh, Jammu & Kashmir, Odisha, Maharashtra, Telangana, Bihar, Uttarakhand & West Bengal. An amount of Rs. 8.50 Crores has been released to the States under TSP during 2016-17.

E. SERICULTURE DEVELOPMENT IN NORTH-EASTERN STATES

North East has the unique distinction of being the only region producing four varieties of silk viz., Mulberry, Ok Tasar, Muga and Eri. Overall NE region contributes 20% of India's total silk production.

The production of all varieties of raw silk during the year 2016-17 in North Eastern States is 6,087 MTs as per the following break-up:

Production of diff. varieties of Silks in N.E.Region (in MTs)	
Mulberry	333
Tasar	5
Eri	5,578
Muga	171
Total	6,087

North East Region Textile Promotion Scheme (NERTPS) for Sericulture support in North East Region

Under NERTPS, 2 sericulture projects have been approved viz., **Integrated Sericulture Development Project (ISDP)** and **Intensive Bivoltine Sericulture Development Project (IBSDP)** covering Mulberry, Eri and Muga sectors in all NE States. The projects aim at holistic development of sericulture in all its spheres from plantation development to production of fabrics with value addition at every stage of production chain. These projects have been approved at a total cost of Rs.819.19 crore with GoI share of Rs.690.01 crore for implementation from 2014-15 to 2018-19. The projects are expected to contribute additional production of 2,285 MT raw silk during the project period and 1,100 MT silk per annum after project period involving 33,550 families, which will generate employment to 1,67,700 persons. The details of ISDP and IBSDP projects including progress and status Utilisation Certificates are indicated below:

(i) Integrated Sericulture Development Project (ISDP)

Under ISDP 16 Sericulture Projects have been approved with a total cost of Rs.582.42 crore (GoI share of Rs.479.60 crores) for implementation in 8 NE States viz., Assam, BTC, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura for implementation from 2014-15 to 2018-19. This includes setting up of Silk Printing, Processing unit for Tripura, Soil to Silk for BTC and PCT for Nagaland. While 15 projects are meant for implementation by States to consolidate the States' efforts to strengthen the existing facilities including support for infrastructure creation at farmers/seed cocoon producers/reelers/weavers' level in identified areas, one project is meant for creation of Seed Infrastructure for CSB to produce and supply quality seed to NE States.

Upto March 2017, 3,114 ha of plantations have been developed against the project target of 4,100 ha under Mulberry, Eri and Muga sectors by involving 9,507 beneficiaries against the target of 24,798 beneficiaries. During this period, 1,216 MT Raw Silk was produced in the project areas against the target of 2,076 MT. Ministry has released Rs.249.78 crore for the above project, against which the expenditure reported is Rs.164.46 crore (66%).

(ii) Intensive Bivoltine Sericulture Development Project [IBSDP]

Eight Projects on Intensive Bivoltine Sericulture Development for all NE States (except Manipur) with a total cost of Rs.236.78 crores (GoI share of Rs.210.41 crores) have also been approved for implementation from 2015-16 to 2017-18. The project aims at production of International quality bivoltine silk to substitute import in the coming years. The project envisages

to cover 200 ha. under mulberry plantation in 2 blocks at each cluster involving approx 1,100 women beneficiaries per State including weavers. Overall, it aims to cover 4,000 acres of mulberry plantation around 8,750 women beneficiaries covering 8 clusters in NE States. Social Mobilization and Women Group Formation along with supporting interventions for plantation development and infrastructure creation are integral part of the project. These projects are presently under implementation in respective States.

Upto March 2017, 1,000 ha of mulberry plantations have been developed against the project target of 1,600 ha by involving 3,440 beneficiaries against the target of 8,750 beneficiaries. The raw silk production was 30 MT against the project target of 209 MT. Ministry has released Rs.110.07 crore for the above project, against which the expenditure reported is Rs.80.15 crore (73%).

The cumulative physical and financial target & achievements of 2 projects under NERTPS (till 31 March-2017) are given in **Annexure- I**.

SPECIAL INITIATIVES/ PROGRAMMES

1. Unified Payment Interface(UPI) awareness programme under Sericulture

Central Silk Board has conducted special awareness programme on Sericulture clubbed with awareness camp on Unified Payment Interface (UPI) towards promoting digital payments among the stakeholders of silk industry from January-2017 to March-2017. Under this, 5426 camps have been held, 272 Bank accounts have been opened and total 951300 persons were participated/downloaded the UPI Apps against the target of 13,00,000 persons.

2. International Women's Day

On the occasion of International Women's Day, Central Silk Board in co-operation with Department of Handlooms & Handicrafts has organised women's day functions in Delhi, Odisha (Keonjhar), Maharashtra (Nagpur), Chhattisgarh (Janjgir), Jharkhand (Ranchi) and Bihar (Bhagalpur) on 8th March-2017. Smt. Smriti Zubin Irani, Hon'ble Union Minister of Textiles has launched a national campaign to eliminate the exploitative and unhygienic practice of thigh reeling in India (practiced by marginal women entrepreneurs for reeling of Tasar silk) and distributed woman friendly "Buniyaad Reeling Machine" developed by Central Silk Board to replace thigh reeling.

3. Swachh Bharath Mission

Central Silk Board has made special budget provision of Rs. 50.00 lakhs per year towards implementation of Swachh Bharat Mission in selected Swachh Resham Gram for next three years i.e. 2017-18, 2018-19 & 2019-20 which includes expenditure on sanitation.

4. Ambedkar Jayanthi

Central Silk Board, Ministry of Textiles has celebrated Ambedkar Jayanthi on 14th April, 2017. A demo on installation and usage of BHIM application was conducted for all employees to encourage digital payment.

POLICY INITIATIVES

1. Custom Duty on imports:

The basic Customs duty on import of raw silk was at the level of 30% from 2002-03 till 2010-11. During the budget for the year 2011-12, the basic customs duty on import of raw silk was reduced from 30% to 5% in order to ensure that raw silk is available to the weavers at reasonable prices. The steep reduction of Customs duty has severely affected the domestic sericulture farmers & reelers with cocoon and raw silk prices falling in the domestic market. Immediately after the reduction of customs duty during Budget announcement in March 2011, there has been a drastic reduction in the reeling cocoon and raw silk prices in the domestic markets. It is necessary to rationalise the customs duty on import of silk Basic customs duty on raw silk needs to be set at a level so as to protect the interests of the sericulture, reeling and weaving sector. At present a basic customs duty of 10% is levied on raw silk and silk fabric and the present level need to be maintained to bring in parity.

2. Anti Dumping Duty on Raw silk & Silk Fabrics:

Raw Silk: In order to safeguard the interest of the domestic silk industry against the cheap imports, a petition was filed by CSB with Directorate General of Antidumping & Allied Duties (DGAD) on behalf of various silk reelers Associations along with the State Governments of Karnataka, Andhra Pradesh & Tamilnadu for imposition of antidumping duty on raw silk imported from China P.R. Considering the merits of the case, the antidumping duty was imposed with a reference price of US\$ 37.32 per Kg. and the same was in force till January-2014. Subsequently an application has been filed before the Director General of Antidumping & Allied Duties (DGAD), New Delhi on 8th May 2014 for imposition of the antidumping duty on Chinese raw silk of 3A Grade & Below. DGAD after thorough investigation recommended imposition of definitive antidumping duty in the form of fixed duty of US\$ 1.85 per Kg on the landed cost of imported raw silk vide notification No.14/17/2014/DGAD dated 4-12-2015, which will be in force till Dec-2020. The current antidumping declaration is expected to stabilize the price of raw silk in domestic market.

Silk Fabric: Consequent upon completion of 5-year term regarding imposition of antidumping duty on Chinese silk fabrics, CSB along with the domestic silk weaving industry has filed a sunset review petition for continuation of antidumping duty. Subsequently, Considering the merit of the case, the DGAD has issued Initiation Notification on 6th December 2009 & has once again imposed enhanced antidumping duty on Chinese silk fabrics with weight ranging from 20-100 gm/meter indicating a reference price of US\$ 2.08 - 7.59 / Mtr with effect from December 2011.

Further, subsequent to the discussion had with the weavers Associations & comparing the prices of imported silk fabrics (Like Crepe, Georgette etc.) in the domestic market, it is observed that there is a no possibility for a 2nd Sunset Review. Under the above circumstances and as per the opinion gathered from various weavers Associations, CSB need to analyse the domestic market conditions on import of silk fabrics & its prices (for at least 6 months' period after the closure of the antidumping duty). Subsequently, any decline/impact in the prices of imported silk fabrics in the domestic market, an appropriate

decision would be taken for moving a fresh application/petition (in consultation with Associations) to arrest the possible dumping.

B. STATUS OF SILK INDUSTRY

Silk is the most elegant textile in the world with unparalleled grandeur, natural sheen, and inherent affinity for dyes, high absorbance, light weight, soft touch and high in durability. Because of these unique features silk is known as the **“Queen of Textiles”** the world over. On the other hand, it stands for livelihood opportunity for millions, owing to its high employment potential, low capital requirement and remunerative nature of its production. The very nature of this industry with its rural based on-farm and off-farm activities and enormous employment generation potential has attracted the attention of the planners and policy makers to recognize the industry among one of the most appropriate avenues for socio-economic development of a largely agrarian economy of India. Silk has been intermingled with the life and culture of the Indians. India has a rich and complex history in silk production and its silk trade which dates back to 15th century. Sericulture industry provides employment to approximately 8.25 million persons in rural and semi-urban areas in India. Of these, a sizeable number of workers belong to the economically weaker sections of society, including women. India’s traditional and culture bound domestic market and an amazing diversity of silk garments that reflect geographic specificity have helped the country to achieve a leading position in silk industry. India has the unique distinction of being the only country producing all the five known commercial silks, namely, Mulberry, Tropical Tasar, Oak Tasar, Eri and Muga, of which Muga which is produced only in India with its golden yellow glitter is a prerogative of India.

India is the Second largest producer of silk in the World. Among the four varieties of silk produced in 2016-17(P), Mulberry accounts for 70.1% (21,203 MT), Tasar 10.8% (3,259 MT), Eri 18.6% (5,629 MT) and Muga 0.56% (171 MT) of the total raw silk production of 30,263 MT.

Performance of Sericulture Sector

	XI Plan (2011-12)	XII Plan (2012-17)	XII Plan Achievements					
	Achment.	Target	2012-13	2013-14	2014-15	2015-16	2016-17 (Target)	2016-17 (p)
Mulberry Plantation (Lakh ha.)	1.81	2.40	1.86	2.03	2.20	2.09	2.27	2.21
RAW SILK PRODUCTION								
Mulberry (Bivoltine)	1,685	5,000	1984	2,559	3,870	4,613	5,260	5,205
Mulberry (Cross Breed)	16,587	18,000	16731	16,917	17,520	15,865	17,400	15,998
Sub Total (Mulberry)	18,272	23,000	18,715	19,476	21,390	20,478	22,660	21,203
V A N Y A								
Tasar	1,590	4,562	1729	2,619	2,434	2,819	3,285	3,259
Eri	3,072	4,238	3116	4,237	4,726	5,060	5,835	5,629
Muga	126	200	119	148	158	166	220	171
Sub Total (Vanya)	4,788	9,000	4964	7,004	7,318	8,045	9,340	9,060
GRAND TOTAL	23,060	32,000	23,679	26,480	28,708	28,523	32,000	30,263

Source: The data received from DOSs & compiled at CSB (Central office) P: provisional

Production during 2016-17

During 2016-17(P), the total raw silk production in the country was 30,263 MT, which is an increase of 6.1% over the production achieved during the last year and around 94.6% of the annual targeted production for the year 2016-17. The mulberry silk production was 3.5% more during 2016-17(P) over the last year. The bivoltine raw silk production achieved a record production of 5,205 MT during 2016-17(P) by registering 12.8% growth over previous year. Similarly, vanya silk, which includes Tasar, Eri and Muga raw silks, has achieved 12.6% growth during 2016-17(P) over 2015-16. The area under mulberry during 2016-17(P) is up by 6.0%

The State-wise production of Raw silk during 2012-13, 2013-14, 2014-15, 2015-16 & 2016-17 (P) are given in **Annexure-II**.

Raw Silk Imports:

The quantity and value of raw silk imported during XI Plan and during the first 4 years of XII Plan and for the year 2016-17 (P) are given below:

Year	Quantity (MT)	Value (Rs. in Crores)
XI Plan (2011-12)	5683	1111.53
XII Plan 2012-13	4959	1238.56
2013-14	3260	896.44
2014-15	3489	970.82
2015-16	3529	1006.16
2016-17 (p)	3791	1091.85

Source: DGCIS, Kolkata. P: provisional

Exports:

The Indian silk goods are being exported to the traditional major markets like the USA and European countries and small markets of Asia Region. The silk goods export earnings decreased over the years due to global recession and reduction in demand for silk goods in western countries. The export earnings during 2016-17(P) were Rs.1, 871.01 crores. Export values of silk goods during XI Plan and during the first 4 years of XII Plan and for the year 2016-17(p) are given below:

(Rs. in Crores)						
Items	XI Plan (2011-12)	2012-13	2013-14	2014-15	2015-16	2016-17 (p)
Natural Silk Yarn	19.68	21.96	36.25	25.40	30.32	9.61
Silk Fabrics	1497.97	1410.31	1455.63	1465.44	1280.60	406.22
Readymade Garments	765.83	787.15	874.00	1214.01	1078.39	1293.09
Silk Carpet	20.08	21.14	15.71	15.97	16.88	63.76
Silk Waste	49.77	62.97	99.30	109.12	89.80	98.33
Total	2353.33	2,303.53	2480.89	2829.94	2495.99	1871.01

Source: FTSI & MSFTI, DGCIS, Kolkata

P: Provisional

Note: Final Data is based on ITC (HS) codes details received from source data.

Employment Generation:

The employment generation in the country is raised to 8.51 million persons in 2016-17(p) compared to 8.25 million persons in 2015-16, indicating a growth of 3.15%.

NERTPS physical target and financial target & achievement**I. Integrated Sericulture Development Project (ISDP)**

#	State	Total Cost (Rs. Cr.)	Gol share (Rs. Cr.)	Gol Release till Dec-16 (Rs. Cr.)	Benef. to be covered (Nos)	Cumulative Raw Silk Output during project (MT)	
						Target	Achmnt. (Till March-2017)
1	Assam	66.67	47.42	26.73	3,265	196	163.35
2	BTC	34.92	24.68	15.62	1,576	171	149.20
3	BTC(IEDPB)	11.41	10.61	2.29	500	60	*
4	BTC(Soil to Silk)	51.61	49.37	9.41	3,000	245	*
5	Arunachal Pradesh	18.42	18.42	17.50	1,362	79	23.30
6	Manipur (Valley)	149.76	126.60	38.08	2,896	450	426.60
7	Manipur (Hill)	30.39	24.67	13.01	1,514	68	*
8	Meghalaya	30.16	21.91	13.87	1,466	162	110.35
9	Mizoram	32.49	24.49	21.85	1,811	117	74.30
10	Mizoram(IMS DP)	13.52	12.83	8.13	600	15.86	*
11	Nagaland	31.47	22.66	21.52	1,898	166	132.22
12	Nagaland (IESDP)	13.66	12.83	1.90	1000	72	*
13	Nagaland (PCT)	8.57	8.48	2.69	400	Post cocoon & post yarn activities.	
14	Tripura	47.95	33.20	21.02	3,510	275	136.40
15	Tripura (Printing)	3.71	3.71	3.16	--	1.50 lakh mts./yr	
16	Mulberry & Vanya Seed Infrastructure under CSB	37.71	37.71	32.99	--	30 lakh Mulberry & 21.50 lakhs Muga / Eri dfls / yr	
Total (A)		582.42	479.60	249.78	24,798	2,076	1215.72

*Projects newly initiated during 2016-17

II. Intensive Bovoltine Sericulture Development Project (IBSDP)

#	State	Total Cost (Rs. Cr.)	Gol share (Rs. Cr.)	Gol Release till Dec-16 (Rs. Cr.)	Benef. to be covered (Nos)	Cumulative Raw Silk Ouput during project(MT)	
						Target	Achmnt. (Till March-2017)
1	Assam	29.55	26.28	14.26	1,100	29	8
2	BTC	30.06	26.75	15.35	1,200	26	2
3	Ar. Pradesh	29.47	26.20	14.23	1,100	20	-
4	Meghalaya	29.01	25.77	14.90	1,000	27	5.62
5	Mizoram	30.15	26.88	15.70	1,100	26	1.68
6	Nagaland	29.43	26.16	15.13	1,100	27	1.14
7	Sikkim	29.68	26.43	5.50	1,050	27	6
8	Tripura	29.43	25.95	14.99	1,100	27	6
Total (B)		236.78	210.41	110.06	8,750	209	30.44

Annexure- II

State wise Raw Silk production during 2012-13 to 2015-16 & for 2016-17 (P)

(in MT)

#	State	2012-13 Achmnt.	2013-14 Achmnt.	2014-15		2015-16		2016-17 (P)	
				Target	Achmnt.	Target	Achmnt.	Target	Achmnt.
1	Karnataka	8219	8574	8850	9645	10000	9823	11000	9571
2	Andhra Pradesh	6550	6912	6458	6485	5700	5086	5505	5974
3	Telangana			87	101	150	116	150	119
3	Tamil Nadu	1185	1120	1739	1602	1920	1898	2000	1914
4	Kerala	6	4	6	7	9	11	10	9
5	Maharashtra	97	122	378	221	250	274	285	259
6	Uttar Pradesh	157	188	152	236	257	256	280	265
7	Madhya Pradesh	190	195	222	248	215	257	275	97
8	Chhattisgarh	391	391	301	234	253	263	290	360
9	West Bengal	2070	2079	2417	2500	2567	2391	2706	2565
10	Bihar	22	52	74	53	65	67	84	76
11	Jharkhand	1090	2003	2197	1946	2210	2284	2624	2631
12	Odisha	104	53	111	98	120	117	130	125
13	Jammu & Kashmir	145	136	217	138	135	127	170	145
14	Himachal Pradesh	23	25	40	30	30	32	40	32
15	Uttarakhand	17	22	37	29	30	30	38	31
16	Haryana	0.13	0.13	2	0.3	1	0.6	2	1
17	Punjab	5	4	14	4	1	0.8	5	2
18	Assam & Bodoland	2068	2766	2939	3222	3810	3325	4103	3811
19	Ar.Pradesh	22	15	38	12	40	37	48	45
20	Manipur	418	487	737	516	560	519	503	529
22	Meghalaya	517	644	776	656	835	857	900	927
23	Mizoram	40	44	54	50	65	64	82	76
24	Nagaland	324	606	599	619	715	631	690	678
25	Sikkim	3	0.20	13	8	7	6	16	10
26	Tripura	15	40	43	48	56	52	65	12
Total		23,679	26,480	28,500	28,708	30,000	28,523	32,000	30,263

(p): Provisional