

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 2,994 as on 01.01.2018.

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 288 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 2017-18, up to the end of December 2017 a total of 32 new research projects have been initiated and 17 projects have been concluded by various R&D institutes of CSB and currently a total of 150 research projects viz., 92 in Mulberry Sector, 41 in Vanya Sector and 17 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) has been completed and the varieties G4 for South, C2038 for East and North regions, and Tr-23 for hilly areas, have been identified for commercial exploitation.
- ❖ Three new mulberry varieties such as AGB-8, PPR-1 and Ganga have been short listed for testing in the next phase of AICEM.
- ❖ Mulberry is found to sequester carbon @ 873 kg/ha/yr under moderate tillage in Eastern India and similar studies in Southern India is under progress.
- ❖ Two pheromone compounds were identified for the development of trap for leaf roller. Esterification of identified pheromone compounds revealed the presence of Z-e-7, 11- hexadecenal acetate. Now EAG as well as synthesis of the pheromone compound under progress.
- ❖ “Rot fix” a new formulation was developed against root rot disease with an efficacy of 88-94% disease suppression.
- ❖ The variety C-5 was found superior to the control variety S-1635 C-5 under full dose (17.31 kg/plot) and reduced dose (12.58kg/plot) of fertilizer in West Bengal Condition.
- ❖ DNA from 110 progenies were extracted to amplify with primers for Nitrogen Reductase and Chalcone Synthase genes
- ❖ Leaf yield of Vishala was 12.21% higher i.e 10267 kg/ha/ crop than that of the control (S1635) 9150 kg/ha/crop under irrigated conditions in West Bengal.
- ❖ In order to issue the soil health card, 4388 soil samples were collected and are being analyzed.
- ❖ 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.
- ❖ Early vigour, photosynthetic rate, stomatal conductance and transpiration rate of 55 mulberry accessions were studied under ambient temperature and elevated temperature (45°) and CO₂ (500ppm) to identify superior mulberry genotypes..

- ❖ 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.
- ❖ Identified three putative cold tolerant genes for development of cold tolerant mulberry varieties for temperate regions.
- ❖ Surveyed the incidence of root rot diseases in Kashmir regions and identified the causative organism as *Helicobasidium mompa* and *Fusarium oxiforum*
- ❖ The data indicated that the maximum mulberry leaf was recorded with spacing (150+90) cm x 60 cm (13174.83 kg/ha/crop) and minimum leaf observed with 270 cm x 60 cm(8842.17 kg/ha/crop).

R&D efforts have helped in improving the mulberry productivity from 50 MT/Ha/year during 2005-06 to 60 MT/Ha/year during 2017-18.

(ii) R&D on Mulberry Silkworm:

- ❖ 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 of G11x G19 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.
- ❖ 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
- ❖ Two bivoltine hybrids tolerant to NPV viz., CSR52N x CSR26N; (CSR52NxS8N)x (CSR16NxCSR26N) have been short listed for further testing in the field.
- ❖ Fortnightly surveys were conducted to monitor the disease incidence in seed and commercial rearing areas of South India.
- ❖ 15th generation rearing of 8 lines of Pure Mysore breeds has conducted for qualitative improvement of the breed.
- ❖ New breeding lines (Oval & Dumbbell lines) were raised from Bulgarian and Indian parents and completed F3 generation.
- ❖ Out of 32 hybrids evaluated under artificial inoculation study for disease response to root rot and root knot infections, Six hybrids have showed resistance response to both the diseases
- ❖ Based on the performance, identified two hybrid crosses ICB14 x N23 and ICB17 x S8 with high productivity and improved silk quality.
- ❖ In order to develop high yielding silkworm breeds, five pure breeds and two hybrids were procured from Bulgaria and are being evaluated for further selection and utilization.
- ❖ Multi location trial with NPV resistant transgenic silkworm developed through RNAi technique is under progress in South, east and Northern part of India. Transgenic silkworm showed higher NPV resistance as compared to the control.

- ❖ To develop silkworm hybrids suitable to high temperature and humidity regions of southern India, a total of 35 hybrid combinations were short listed and are being evaluated.
- ❖ Rearing of 25 hybrids of silkworm having high temperature and high humidity tolerance under normal and stress conditions completed to short list the best one for Eastern and North-Eastern India.
- ❖ Authorization trial of B.con1 x B. con 4 with 161500 dfls has been completed and recorded an average cocoon yield of 50.25kg/100 dfls in Eastern India.
- ❖ 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.
- ❖ Breeding for developing hardy silkworm breeds for stabilizing the Autumn crop in North and North-Western region is under progress.
- ❖ 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.
- ❖ Field evaluation of the three lines (MASN-4, 6 & 7) of NPV resistant CSR2 silkworm through introgression of NPV resistance has initiated at different agro climatic conditions.
- ❖ 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.
- ❖ 473 silkworm germplasm stocks (81 Multivoltine, 369 Bivoltine and 23 mutants) are being maintained through scheduled rearing.
- ❖ In order to make release of the retaining eggs, use of oviposition stimulants is under progress.
- ❖ Studied the socio economic impact of CPP on bivoltine seri-farmers in Tamil Nadu

R&D efforts have helped in improving the yield from 48 Kg/100 dfls during 2005-06 to 60.3 Kg/100 dfls during 2017-18.

(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.
- ❖ Package developed for moisture conservation and nutrient enrichment of soil in *Terminalia* plantation by incorporating small water catchments at

plantation site, wild leguminous plant (*Mucuna bracteata*) and Phosphate Solubilizing Bacteria (PSB). Average increase in leaf yield up to 49.51% using this package.

- ❖ 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* (Barpat) has been established as potential perennial food plant of Eri silkworm and recommended for field utilization. It recorded Leaf yield of 32 MT/ha/yr as compare to Kesseru plants leaf yield of 25 MT /ha/yr.
- ❖ 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.
- ❖ The *Alternaria ricini* have been isolated in pure form from the infected castor leaves. In bioassay studies antagonistic efficacies of isolate rhizobacteria were tested and isolate LRP-4 and HF-3 showed the maximum inhibition of test pathogen.

Vanya Silkworm

- ❖ Tasar Daba bivoltine silkworm 'BDR-10' is under popularization.
- ❖ Multi-location field trial for high fecundity Tasar silkworm line, CTR-14 was conducted at five locations. 20-22% gain over control in respect of productive traits was recorded.
- ❖ Two promising lines of Tasar silkworms, DTS and DT-12 selected and 38250 seed cocoons of these lines are under preservation.
- ❖ 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 an 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. One trial grainage of these combinations completed.
- ❖ 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 bioassay studies of the same under laboratory condition is under progress.
- ❖ Sericin has been separated from tasar silk fibre waste for its isolation and characterization for commercial utilization. The availability of sericin in different fibre waste is about 1.8-2.5%.

New Breeds/Varieties approved for popularization:

The following silkworm hybrids are under trial for submitting data to Hybrid Authorization Committee (HAC) for authorization and commercialization.

#	New breeds/varieties	Region
Mulberry sector		
1	G11x G19	South zone
2	MV1xS8	
3	B. con 1 x B. con 4	East and North-East
4	M6DP(C)x(Sk6xSK7)	
Vanya sector		
5	CTR-14	All regions suitable for tasar culture
6	CMR-1	All regions suitable for muga culture
7	CMR-2	

(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.
- ❖ Technologies developed for Hot air drying of Tasar cocoons using conveyor hot air drier.
- ❖ Popularization of Low cost eight end multi-end reeling machine for T asar silk reeling.
- ❖ In Vanya silk post cocoon sector 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.

- ❖ Technology for eri cocoon degumming using HTHP extraction (degumming of silk) of sericin from silk yarn in the Hank form developed and recovered sericin from the degumming liquor by low temperature evaporation, spray drying and freeze drying was standardized.
- ❖ 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'ORéal.
- ❖ Characterizing the sericin for its utilization in cosmetics (soaps, shampoos, hair creams, etc and as an additive for talcum powder) applications.
- ❖ Technologies developed for Cooking Raily tasar cocoons for wet reeling.
- ❖ 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.
- ❖ A biofinish has been developed, which enhances the properties of Tasar fabrics in terms of aesthetic and thermo-physiological comfort significantly.
- ❖ Developed diversified silk knit wear products/ garments.

R&D efforts have helped in improving the Renditta from 8.2 during 2005-06 to 7.3 during 2016-17.

(v) Patents & Commercialization:

1) During 2016-17

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 Reeliboot
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

2) During 2017-18

a. Patents obtained:

1. Chemical formulation for cooking Muga Cocoons for higher silk yield

2. Improved handloom using pneumatic lifting mechanism for jacquards

3. Improved reeling cum twisting machine

b. Applications filed for patenting:

1. The product 'Rot Fix' has been applied for patenting.

c. Technologies/products commercialized:

Pre-steaming technique for improving the winding performance of raw silk skeins

(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, L'orel, ILRI Ranchi etc. During 2017-18, a total of 14 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, 13 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, and 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: Entrepreneurship Development Programme, Technology Up-gradation Programme, Resource Dev. Programme / Trainers Training Programme, Competency Enhancement Training Programme, Disciplinary Proceedings Training, Management Development Programme etc.

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

These training cum facilitation centres would be 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. As on date 15 SRCs are functioning.

(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 Budding and training initiatives by popularizing recommended technologies through 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. During September 2017 a total of 1500 copies of Handbook on Silk Industry in India (Info Booklet) have been got printed through Publicity Section.

Table below shows details of number of persons trained under programmes organized by the Research & Training Institutes of CSB during the years 2015-16 to 2017-18 (Till December-17) is given below:

#	Training courses	No. of persons Trained					
		2015-16		2016-17		2017-18	
		Target	Achmt.	Target	Achmt.	Target	Achmt. (Till Dec-17)
1	Structured Courses (PGDS, Mulberry & Non-Mulb. Courses)	100	85	100	111	265	118
2	Farmers Skill Training, Technology Orientation Programmes, Capsule & Adhoc Courses and Exposure Visit	8885	11798	9400	9034	8030	5258
3	Other Training Programmes	1000	1194	4000	6628	4945	4640
4	STEP	895	909	1500	917	2030	1464
	TOTAL	10880	13986	15000	16690	15270	11480

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 2017-18, up to the end of Dec. 2017, a total 1540 ToT programmes have been organized and 56 technologies were transferred effectively to the user level under pre-cocoon sector. Further, in post cocoon sector a total of 1306 field programmes/ technology demonstrations were conducted and 76,687 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 is 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, 5266 MTs of Bivoltine raw silk has been produced against Country's target of 5260 MTs during 2016-17 i.e. 653MT (14.2%) in excess against 4613 MT produced during the year 2015-16. Bivoltine clusters contributed 3405 MT i.e 65.0% of the country's BV raw silk production of 5266MT during 2016-17.

Cluster Promotion Programme is being continued for the next three years from 2017-18 to 2019-20 mainly to focus on enhancing the Country's bivoltine raw silk production target of 8500 MT at the end of 2019-20. While restructuring/reorientation of some of the existing clusters of Northwestern region for effective monitoring purpose the total number of clusters were brought down to 151 clusters from the existing 174 clusters without effecting the total cluster target. During the year 2017-18 (April- Nov -2017) the total BV raw silk production stands at 3689 MT against the total bivoltine raw silk target of 6200 MT. It is anticipated to produce 4100 MT of bivoltine raw silk, from 151 clusters during 2017-18 which contributes about 67% of total production target of 6100 MT. The Bivoltine raw silk production through 151 clusters at the end of August 2017 stands at 1200MT.

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

The CPP program for Vanya silks is being 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 have been entrusted to monitor the implementation of those clusters in close coordination with respective State DoSs. A total of 22 clusters in Tasar sector have been identified in different Tasar producing States and benchmark survey, diagnostic studies have been completed. Orientation Workshops organized for building awareness and capacity building of CDFs and State officials to take off implementation process. 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 for supporting quality Tasar silkworm 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.

1625 beneficiaries were covered under Capacity building, exposure visit, Door to Door and awareness programme on technology transfer service out of the total target of 1853 under VCPP. The performance was reviewed in the meeting held on 22.07.2017 at CTRTI, Ranchi. During the year 2016-17 a total of 1.79 lakh dfls were brushed by Adopted seed rearers in seed crop (Ist Crop) and produced 54.71 lakh seed cocoon. These seed cocoons were processed by 125 Private graineurs to produce 5.25 lakh dfls of which 4.71 lakh dfls were reared by 2065 commercial farmers in second crop (commercial) in the clusters and produced 173.56 lakh cocoons during the year 2016-17. Balance 0.88 Lakh BV seed was supplied to the commercial farmers outside the clusters

During the year 2017-18 a total of 2.05 lakh dfls were brushed by 972 Adopted seed rearers in seed crop (Ist Crop) and produced 72.31 lakh seed cocoon @ 35 cocoons/ dfl. These seed cocoons were processed by 141 Private graineurs to produce 5.73 lakh dfls of which 5.60 lakh dfls were reared by 2235 commercial farmers in second crop (commercial) in the clusters. Cocoon harvest details are awaited from the field

(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 achieved production of 5200 MTs of Bivoltine Silk at the end of XII plan against a target of 5000 MT.

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.

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 objectives 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 phones using mKisan Web Portal. 33,02,000 messages are sent till date.
- ❖ **‘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 5140 stake holders are receiving SMS messages on daily basis.
- ❖ **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 Bi-voltine 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, CSR&TI, Pampore, CMER&TI, Lahdoigarh and RO, New Delhi. From 1st April to 31st December 2017, 30 multi-locational Video conferences are conducted.
- ❖ **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. CSB has initiated steps to make CSB website GIGW compliance and security audited as per Govt. of India guidelines.
- ❖ **On-line applications:** Central Silk Board has successfully completed 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 4596 employees including farm workers have registered into the attendance portal. 56 units have implemented AEBAS out of 176 units where 5 or more officials are working are in the process of procuring and implementing AEBAS devices.
- ❖ **Windows based Accounting Software:** Successfully converted DOS based FAS/PRS package into windows based FAS/PRS with additional user

friendly features. Implementation of the same in all the delegated units of CSB are in progress.

- ❖ **National Database for farmers and reelers** : 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 Dec-2017, 5,30,395 farmers and 6779 reelers details have been recorded by the states in the database.
- ❖ **MIS ON NERTPS "INTENSIVE BIVOLTINE SERICULTURE DEVELOPMENT PROJECT IN NORTH EAST STATES"**: MIS for Intensive Bivoltine Sericulture is developed and hosted on dedicated servers for trouble free access by all stake holders.
- ❖ **Grievances and VIP references**: Designed & developed, database for management of grievance and VIP references.
- ❖ **Digitization of Pension Records**: Software designed and developed for digitization of pension papers. All the pension records were digitized for security, safety and ease of management.
- ❖ **Development of mobile app**: Initiated process to create mobile application to reach the vast mobile users with sericulture details in friendly and useful manner.

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 the years 2015-16 to 2017-18 (till December-17) are given below.

(Unit: Lakh dfls)

Particulars	2015-16		2016-17		2017-18	
	Target	Achmnt.	Target	Achmnt.	Target	Achmnt. (Till Dec-17)
Mulberry	375.00	410.50	390.00	430.10	440.00	237.98
Tasar	47.14	51.62	47.43	48.60	51.08	49.15
Muga	7.26	7.45	8.13	6.87	8.07	5.57
Eri	4.52	5.75	5.5	4.78	6.00	5.91
Total	433.92	475.32	451.06	490.35	505.15	298.61

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 the last 3 years 2015-16 to 2017-18 (till Dec-17) are 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
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
2017-18 (Up to Dec-2017)	125.31	129.99	100.03	155.64	1.50	2.20	1.50	2.31

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 Systems 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 Centres which have been established in different Cocoon Markets with the support under CDP facilitate cocoon testing. The network of Certification Centres 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 artificial silk products in the name of pure silk.

The progress achieved under the Silk Mark Scheme during the XI Plan period and during the last 3 year 2015-16, 2016-17 & 2017-18 (from April 2017 to December 2017) is given below:

Particulars	2015-16		2016-17		2017-18	
	Target	Target	Target	Achmnt	Target	Achmnt (Till Dec-17)
Total No. of new Members enrolled	250	272	250	250	250	219
Total No. of Silk Mark Labels sold(Lakh nos.)	25.00	27.00	25.00	25.53	27.50	19.042
Awareness Programmes/ Exhibition/ Fairs/ Workshop/ Road shows	390	410	410	622	450	408

(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 selling and buying 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 2017-18 (from April 2017 to December 2017), in view of the sluggish market for silk products and poor response from the Authorised Users, SMOI has organised only three Silk Mark Expos at NEDFi House, Near

Hanuman Mandir, Guwahati and Kalaivanar Arangam, Walajah Road, Chennai and Sathya Sai Nigamagamam, Hyderabad. The details are as below:

#	Description	05 th to 11 th April 2017. 7 days	15 th to 19 th Sept' 2017. 5 days	06 th to 12 th October 2017 7 days	2 nd to 9 th Dec- 2017 8 days	Cumulative
	Place	Guwahati	Guwahati	Chennai	Hyderabad	
1	No. of stalls	40	37	40	40	157
2	No. of AU s	40	37	37	40	154
3.	No. of states	6	8	13	11	13(max)
4.	No. of Visitors	1200	8000	3500	9500	22200
5.	Business turn over	1.60 Crs	1.00 Crs	1.40 Crs	3.20Crs	7.20 crs

(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:

1. PURE SILK DESIGN CONTEST: A new concept of “Pure Silk Design Contest” has been conducted for the benefit of local budding designers to develop new patterns using the Vanya silk fabrics. The event has been organised at NEDFi House, Guwahati and a overwhelming response received from the local designers and boutiques. SMOI has awarded prizes to the best designed garment. SMOI has undertaken a wide publicity through road shows, flyers, advertisement releases in news papers & electronic media, Big FM Radio, Face Book, WhatsApp etc.
2. On the occasion of Swatch Bharat Pakhwada programme, the SMOI Corporate office & Bangalore Chapter has organised a Road Show on 09.05.2017 near the CSB junction. More than 300 officers/officials and family members of Central Silk Board actively participated in the road show from 10.00 am to 11.00 a.m. The volunteers wearing Silk Mark T –Shirts held the placards carrying informative messages to spread awareness about the cleanliness drive. The volunteers standing on footpaths of the entire road connecting the CSB junction spread the Swatch Bharat message to the public without disturbing the traffic.

An exhibition on the waste management on the theme “Reduce, Recycle and Reuse” has been arranged near the CSTRl corridor. 10 agencies/vendors participated in the exhibition giving a live demonstration on the various aspects of the waste generation and highlighted on waste to wealth theme. The general public and officers of CSB appreciated the efforts.

3. Ministry of Textiles, Govt. of India has organised a mega event “Textiles India 2017” at Mahatma Mandir, Gandhi Nagar, Gujarat from 30th June to 2nd July 2017. A stall space of 140 sq. mtr., has been allotted in Hall no. 2 to Central Silk Board to establish theme pavilion. SMOI has coordinated the grand show depicting pre cocoon activities including live demonstration of Mulberry, Eri and Muga silk worms and post cocoon activities, display of newly developed silk products and new innovation “Buniyad” tassar reeling machine. The pavilion named “SILKS OF INDIA” attracted visitors from India and abroad. Smt. Smriti Zubin Irani Hon’ble Minister of Textiles has particularly appreciated overall presentation and display of the theme pavilion. Central Ministers from other departments and the top officers from the ministry have visited the pavilion and appreciated.
4. In order to create a platform to the members of Silk Mark to explore the export market, SMOI has provided 15 stalls of 9 sq. mtr size in hall no 9 at subsidised stall rents. 14 numbers of Authorised Users from Bangalore, Cochin, Varanasi, Ahmadabad and Mumbai have showcased their exclusive range of products and received good response from the Silk Importers from different countries.
5. **FLOWER SHOW:** SMOI, Bangalore Chapter has participated in the Mysore Dasara Flower Show which was organised by District Horticulture Department, Govt. of Karnataka at Kuppanna Park, Mysore from 21.09.2017 to 02.10.2017. The Silk Mark theme was arranged by erecting 2 nos. of butterfly (size 5ft X 5 ft) made with beautiful red & white colored rose flowers & asparagus grass in the flower show. The show was inaugurated by Dr. H C Mahadevappa, Hon’ble Minister for PWD, Govt. of Karnataka on 21st September 2017 at 5 p.m. More than 50000 peoples have visited the flower show and appreciated the efforts made by SMOI.
6. **SRIMATHI SILK MARK—Kochi:** SMOI, Palakkad Chapter has organised grand finale of Srimathi Silk Mark 2017 at Rena Event Hub, Bannerjee Road, Kochi on 08.10.2017. The beauty pageant was arranged to provide a platform to the married women across Kerala to excel & showcase their beauty & talent among a large audience. An overwhelming response received for the auditions and 14 women were selected for the grooming & grand finale. A panel of judges comprising cine actor, fashion designer, fashion photographer, principal of J.D. Institute of fashion Technology and Director of Sericulture, Bodoland selected Srimathi Silk Mark & two runner ups. Prizes were distributed by Dr. Thomas Chandy, IFS, Principal Secretary cum PCCF Govt. of Sikkim.

On this occasion North East pure silk dresses show has been arranged with the professional models to promote new designs from the north east region. 10 designers of repute from the NE states participated in the show. Prior to this show an interactive session on commercialisation of vanya silk products has been organised with the support of VSMPC /P3D cell of CSB & 50 stake holders participated.

7. SRIMATHI SILK MARK- Curtain raiser at Hyderabad & Mumbai

The Hyderabad Chapter has organised a curtain raiser of 3rd edition of Srimathi Silk Mark at Vizag on 28.10.2017. The event conducted at Ambica See Green Hotel, Beach Road, Vizag wherein a number of aspirants participated in the show. Smt. Lakshmi Bhargavi, film producer, Smt. Sandhya fashion designer & others participated.

The Mumbai Chapter has conducted press meet in connection with the Srimathi Silk Mark to be organised at Mumbai for the first time. The glamorous event conducted at Hotel Sea Princess, Mumbai on 27.10.2017 and it was attended by many dignitaries. In the press meet about 40 media persons, 20 designers and various upcoming models were present. A wide coverage of the grand event was provided by the digital & print media.

5. FINANCIAL PROGRESS

A. Plan & Non-Plan:

The table below indicates year-wise financial performance of the Central Silk Board during the years 2015-16 to 2017-18 (Till Dec-17) are given below:

(Cr. Rs.)

BUDGET HEADS	2015-16		2016-17		2017-18 (Till Dec-17)	
	Allocation	Expnd.	Allocation (RE)	Expnd.	Allocation (Approved BE)	Expnd.
Administrative Expenditure	306.09	302.08	342.50	342.50	372.00	302.84
Scheme Outlay	178.10	178.10	154.01	154.01	193.50	136.85
Total	484.19	480.18	496.51	496.51	565.50	439.69

B. Plan Schemes:

Financial Allocation and Expenditure incurred by CSB towards implementation of major Schemes and Programmes of CSB during the years 2015-16 to 2017-18 (Till Dec-17) are given below:

(Cr. Rs.)

#	Programmes of CSB	2015-16 Expnd.	2016-17 Expnd.	2017-18 (Till Dec-17)	
				Allocation (Approved BE)	Expnd.
1	Research, Development, Training & IT Initiatives	88.29	74.82		
2	Seed Organisation	52.79	34.83		
3	Coordination & Market Development (HRD)	9.02	11.64		
4	Quality Certification System & Export/Brand promotion & Tech. upgradation	1.00	1.49		
	SCSP	7.00	22.73		
	TSP	20.00	8.50		
6	Integrated Scheme for Development of Silk Industry			193.50	136.85 (Provisional Expnd)
Grand Total				193.50	136.85

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 taken for further by mobilizing additional funds through convergence, by availing the schemes being implemented by various other Ministries of Govt of India. As per the latest reports received from States, during the year 16-17, against the proposals of States for Rs. 937.34 crores, the States have received sanction for Rs.902.84 crores, of which Rs.521.64 crore has been released under RKVY, MGNREGA and other convergence programmes. During the current financial year 2017-18, States have submitted proposals for Rs.816.92 crores and received sanction for an amount of Rs.705.32 crores and received funds worth Rs. 281.49 crores till Dec-2017.

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 took up multi-state ventures involving Society for Elimination of Rural Poverty, Govt of Andhra Pradesh (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 seven projects envisage to cover 36117 mahila kisans (26094 in tasar sector) from 23 districts in 7 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. The multistate project in Jharkhand, Odisha, West Bengal, Chhattisgarh and Maharashtra which were to be concluded by March 2018, extension is being sought by PIAs till March 2019. Also, the project in AP is discontinued by the PIA, SERP, Govt. of Andhra Pradesh since September 2016.

Financial Progress: MoRD has released Rs. 29.34 crores to CSB under multi state project of which Rs. 29.023 crores has been released to the PIAs, who have utilized Rs.17.71 crores (68.93%). CSB has also released Rs. 15.95 crores to all the PIAs including SERP, AP & BRLPS of which Rs.12.12 crores has been utilized.

Physical Progress: A total of 31210 farmers were covered (81.03%-ST, 4.88%-SC and 14.12%-minorities) in 828 hamlets, 693 revenue villages, 60 blocks and 26 districts of the Project states. Under the projects, 1377.74 ha. of block plantations were raised by 2496 farmers. 1570 seed rearers brushed 8.03 lakh dfls of basic seed procured from BTSSO and BSPUs, to produce 230.75 lakh seed cocoons @ 28.73 seed cocoons per dfl. 303 nucleus seed rearers brushed 1.125 lakh dfls of nucleus seed to produce 51.918 lakh seed cocoons @ 55.23 seed cocoons per dfl. 254 private graineurs processed 165.753 lakh seed cocoons and produced 36.81 lakh commercial dfls @ cocoon: dfl ratio of 4.5:1

and 11701 commercial rearers brushed 38.69 lakh dfls procured from the private grainages, to produce 929.58 lakh reeling cocoons @ 33 cocoons per dfl.

Scaling up projects under MKSP by State Rural Livelihood Missions (SRLMs) with support of CSB as NRLM Support Organization (NSO)

As per the decisions taken during the Stakeholders' Meet by the Hon'ble Union Minister of Textiles at New Delhi on 10.02.2017 and also CSB being the National Rural Livelihood Mission (NRLM) Support Organization [NSO] of MoRD will be supporting the State Rural Livelihood Missions (SRLMs) in project formulation, implementation (designing technical protocol, value chain studies, project documentation) and capacity building (preparation of training modules, exposure on tasar cultivation to the livelihoods anchor persons of SRLMs) etc.

CSB also represented the Empowered Committee (EC) of MoRD to consider Annual Action Plans (AAPs) under Mahila Kisan Sashaktikaran Pariyojana (MKSP) Tasar based interventions from the states of Jharkhand, Odisha and WB on 1.3.17. These projects covering 35220 Mahila Kisans at an outlay of Rs. 63.34 crores have been approved, as per letter no. K-11034/02/2017/MKSP/EC dt. 3.3.17. Besides, CSB supported SRLMs of Chhattisgarh and Bihar to finalize the tasar proposals, which are under consideration of MoRD. Following are the details of the projects already approved and in pipeline.

(Rs. in lakhs)

State	No. of beneficiaries	MoRD share	SRLM share	Total
Jharkhand	25000	2792.835	1861.89	4654.725
Odisha	5220	513.57	342.38	855.95
West Bengal	5000	494.191	329.461	823.652
Approved	35220	3800.596	2533.731	6334.327
Chhattisgarh	10448	1118.504	745.669	1864.173
Bihar	3795	446.7304	297.8203	744.5506
In pipeline	14243	1565.234	1043.489	2608.724
Total	49463	5365.83	3577.22	8943.051

CSB also propose to extend support under CSS schemes in post cocoon sector, as the sustenance of operations can be ensured under MKSP Projects due to provisions available for creation of cocoon banks, working capital for reelers to purchase cocoons per activity cycle, producer institutions with options to bring them under producer company, handholding by block level SRLM teams for better monitoring, funding from MoRD to meet the beneficiary share etc.

C. SCHEDULED CASTE SUB-PLAN (SCSP)

The project namely "**Empowerment of Scheduled Caste families through Sericulture under Scheduled Caste Sub-Plan (SCSP)**" is being implemented in coordination with State sericulture departments/ other implementing agencies during the year 2017-18. So far (till Dec-17), an amount of Rs. 20.11 Crores has been released to Andhra Pradesh, Telangana, Uttar Pradesh, J&K, Uttarakhand, Odisha, Bihar, Tamil Nadu and Himachal Pradesh States under SCSP against the total allocation of Rs. 23.00 crores. The project covered 1829 beneficiaries against 2330.

D. TRIBAL SUB-PLAN (TSP)

The project namely “**Empowerment of Scheduled Tribe families through Sericulture under Tribal Sub-Plan (TSP)**” is being implemented in coordination with State sericulture departments/ other implementing agencies during the year 2017-18. So far (till Dec-17), an amount of Rs. 23.78 Crores has been released to Andhra Pradesh, Telangana, Uttarakhand, Jharkhand, Odisha, Maharashtra, West Bengal, Bihar, Uttar Pradesh, J&K, Himachal Pradesh and Chhattisgarh States under TSP against the total allocation of Rs. 30.00 crores. The project covered 8424 beneficiaries against 11107.

E. SERICULTURE DEVELOPMENT IN NORTH-EASTERN STATES

In order to boost the textile sector in the NE region, the Govt of India has approved a project-based strategy for the North East Region under an umbrella scheme by name “**North East Region Textile Promotion Scheme**”. Under NERTPS, various projects under Textile sector including sericulture have been approved under two broad categories viz., ISDP and IBSDP. These two 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.

On-going projects:

For sericulture, 24 projects have been approved covering Mulberry, Eri and Muga sectors in all NE States. The total cost of these projects is Rs.819.19 crore with GoI share of Rs.690.01 crore for implementation from 2014-15 to 2018-19. Objectives of these projects are to establish sericulture as viable commercial activity in NE by creating necessary infrastructure and imparting skills to the locals for silk worm rearing and allied activities in silk production value chain. It is proposed to bring around 31,010 acres (existing – 18,331 acres and new – 12,679 acres) of plantation under mulberry, Eri and Muga sectors. 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 involving 46,094 families, which will generate employment to 2,30,500 persons. These projects have been approved in 10 PAMC meetings held from 17-12-2013 to 16-11-2016.

Progress: Upto Dec, 2017, about 29,960 acres (existing -18,331 acres and new-11,629 acres) have been brought under host plantation of Mulberry, Eri and Muga covering 29,905 beneficiaries and produced 1,600 MT of raw silk under ISDP & IBSDP. As against Rs.546.70 crore released by Ministry under the above projects, an expenditure of Rs.343.10 crore (63%) has been incurred.

Under **Integrated Sericulture Development Project (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. The projects will support 27,010 acres (existing-17,650 acres and new-9,360 acres) plantation of Mulberry, Eri & Muga. 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 Dec 2017 Ministry has released Rs.362.78 crore for the above projects, against which the expenditure reported is Rs.236.10 crore (65%).

Eight Projects under **Intensive Bivoltine Sericulture Development Project (IBSDP)** 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 to enhance the production of import substitute International quality bivoltine silk. The project envisages to cover 500 acres under mulberry plantation in 2 blocks of each district involving approx 1,100 women beneficiaries per State including weavers. Overall, it aims to cover 4,000 acres of mulberry plantation benefitting around 9,071 women stakeholders covering in NE States. Social Mobilization and Women Beneficiaries 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 Dec 2017 Ministry has released Rs.181.92 crore for the above project, against which the expenditure reported is Rs.107.00 crore (59%).

The project-wise and state-wise details of NERTPS are given in the Table below:

Statement showing the details of ISDP and IBSDP project under NERTPS:

Integrated Sericulture Development Project								
#	State	Total Project cost (Rs. Cr.)	Gol Share (Rs.Cr.)	Gol Release till date (Rs. Cr.)	Beneficiaries (Nos)		Output during project (MT)	
					Target	Achmt	Target	Achmt(P) (upto Nov2017)
1	Assam	66.67	47.42	37.48	5,965	4,451	196	198
2	BTC	34.92	24.68	22.62	3,356	2,344	171	203
3	BTC(IEDPB)	11.41	10.61	4.19	654	142	60	18
4	BTC(Soil to Silk)	51.61	49.37	9.41	3,526	750	245	59
5	Arunachal Pradesh	18.42	18.42	17.50	1,805	1,392	79	23
6	Manipur (Valley)	149.76	126.60	107.55	6,613	5,115	450	369
7	Manipur (Hill)	30.39	24.67	13.01	2,169	985	68	40
8	Meghalaya	30.16	21.91	19.57	2,856	1,421	162	162
9	Mizoram	32.49	24.49	23.26	1,683	665	117	99
10	Mizoram(IMSDP)	13.52	12.83	10.13	833	204	16	1
11	Nagaland	31.47	22.66	21.52	2,678	1,565	166	160
12	Nagaland (IESDP)	13.66	12.83	8.11	1,053	113	72	7
13	Nagaland (PCT)	8.57	8.48	2.69	400	400	Post cocoon & post yarn activities.	
14	Tripura	47.95	33.20	29.58	3,432	3,659	275	174
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 & 3.70 lakhs Muga / Eri dfls / yr	
	Total (I)	582.42	479.60	362.78	37,023	23,206	2,076	1,512

II Intensive Bivoltine Sericulture Development Project								
#	State	Total Project cost (Rs. Cr.)	Gol share (Rs.Cr.)	Gol Release till date (Rs. Cr.)	Beneficiaries (Nos)		Output during project (MT)	
					Target	Achmt	Target	Achmt(P) (upto Nov2017)
1	Assam	29.55	26.28	17.11	1,144	744	29	18
2	BTC	30.06	26.75	25.41	1,188	611	26	19
3	Arunachal Pradesh	29.47	26.20	24.89	1,144	508	20	2
4	Meghalaya	29.01	25.77	24.47	1,044	1,033	27	13
5	Mizoram	30.15	26.88	25.54	1,169	1,100	26	7
6	Nagaland	29.43	26.16	24.85	1,144	1,034	27	7
7	Sikkim	29.68	26.43	15.00	1,094	655	27	6
8	Tripura	29.43	25.95	24.65	1,144	1,014	27	15
	Total (II)	236.78	210.41	181.92	9,071	6,699	209	88
	IEC			2.00				
	Grand Total (I+II)	819.19	690.01	546.70	46,094	29,905	2,285	1,600

P: Provisional

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 has 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. Swachha Bharath Mission

Central Silk Board has created a separate Component Head "Swachha Bharat Abhiyan" under CSS Scheme "Integrated Scheme for Development of Silk Industry" during 2017-18 and Rs.50.00 lakhs have been earmarked to meet expenses under "Swachha Bharat Abhiyan" during CFY. Progress achieved during first quarter is as below.

a. Observation of Swachhata Pakwada (1st May -15 May 2017)

Central Silk Board and its 308 subordinate units have observed Swachhata Pakwada from 1st May 2017 to 15 May 2017. During the 15 days long programme, CSB has organised pledge on Swachhata, cleaning of office premises, planting of saplings, Road shows, elocution and essay competitions on Swachhata, talks on waste segregation and management

and awareness camps on waste to wealth, health and hygiene awareness etc.,. All employees were motivated to move towards e-office to reduce usages of paper to maximum extent. CSB arranged Standee and displayed message on Swachhata. Most of the programmes were telecasted in local TV Channels. TV and media coverage on this programme have been taken in large scale. The achievements have also up-loaded in <http://sbm.gov.in/SwachhSamiksha/index.aspx>

b. Road Show on Swacchhata:-

Central Silk Board and its main Institutes have organized Road Shows on 09/05/2017 at Bangalore, Ranchi, Guwahati, Mysore to create awareness on Swachhata. All the participants were holding different placard on Swachhata to educate others. Pamphlets on Swachhata were distributed. It passed on a positive message amongst the people. The programme was telecasted in DD Chandana Channel.

c. Exhibition on Swachhata highlighting recycling of biodegradable waste and use of organic products

CSB has arranged an exhibition on Swachhata highlighting recycling of biodegradable waste and use of organic products on 09-05-2017 and was open for public. About 15 stalls were installed displaying the use of kitchen waste in biogas formation, use of composting, recycle, re-use, Use of organic farming, Use of Herbal Detergents in washing. It attracted maximum attention.

d. Adoption of Swachha Resham Grams by CSB R & D Institutes:

Central Silk Board through its R & D Institutes have adopted 5 Swachh Resham Grams at Gopalpura Village in Mysuru Taluk, Mallickapur Village at Berhampore, Borholla Village in Titabar, Bhaisajhal Village in Kota, Bilaspur Hutar in Ranchi to ensure overall development of sericulture hygiene and promotion of organic farming. Besides one primitive Tribal village was adopted by RTRS, Baripada and distributed 500 tooth Brush, paste and tongue cleaners as a part of health is wealth.

e. “Swachhta Hi Seva (SHS)” campaign from 15th September 2017 to 2nd October, 2017:

Central Silk Board at its Head office, R&D Institutes and their field units organized “Swachhta Hi Seva”(SHS) campaign with an inaugural function on 15.09.2017 by taking mass oath by all the employees of Central Silk Board & its R&D Institutes spread over India. During the 15 days long programme, CSB has organised pledge on Swachata, cleaning of office premises, planting of saplings, Road shows, talks on waste segregation, Awareness programme on shauchalaya nirmal at Govt. schools by involving the local MLA/Corporator’s and management and awareness camps on waste to wealth, health and hygiene awareness etc.,. All the staff including field workers has been involved in this programme and ended the campaign on 02.10.2017 - Gandhi Jayanthi Day as a tribute to the Father of our Nation as well as three years of the Swachh Bharat campaign.

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. A vide film on

“Empowerment of SC families through Sericulture” released by HMoT at New Delhi on 14.04.2017.

POLICY INITIATIVES

1. Custom Duty on imports:

At present a basic customs duty of 10% is levied on raw silk and silk fabric.

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, an antidumping duty of US\$ 1.85 per kg of the landed cost of imported raw silk of 3A grade & Below in the form of fixed duty has been imposed during December-2015 by Director General of Antidumping & Allied Duties (DGAD), which will be in force till Dec 2020.

Silk Fabric: An Antidumping duty on Chinese silk fabrics weight ranging from 200-100 gm/meter indicating a reference price of US\$ 2.08 – 7.59/Mtr was in force till December – 2016.

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 no possibility for a 2nd Sunset Review. Under the above circumstances and as per the opinion gathered from various weavers Associations, CSB needs to analyze 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, Mulberry accounts for 70.09% (21,273 MT), Tasar 10.77% (3,268 MT), Eri 18.58% (5,637 MT) and Muga 0.56% (170 MT) of the total raw silk production of 30,348 MT.

Performance of Sericulture Sector

Particulars	2015-16 Achmnt.	2016-17		2017-18	
		Target	Achmnt.	Target	Achmnt. (P) (Till Nov- 17)
Mulberry Plantation (Lakh ha.)	2.09	2.27	2.17	2.41	2.32
RAW SILK PRODUCTION:					
Mulberry (Bivoltine)	4,613	5,260	5,266	6200	3689
Mulberry (Cross breed)	15,865	17,400	16,007	17276	10552
Sub Total (Mulberry)	20,478	22,660	21,273	23,476	14,241
V A N Y A					
Tasar	2,819	3,285	3,268	3450	1423
Eri	5,060	5,835	5,637	6675	4,172
Muga	166	220	170	240	118
Sub Total (Vanya)	8,045	9,340	9,075	10,365	5,713
GRAND TOTAL	28,523	32,000	30,348	33,840	19,954

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

Production during 2016-17 & 2017-18 (upto November 2017)

During 2016-17, the total raw silk production in the country was 30,348 MT, which is an increase of 6.4% over the production achieved during the last year and around 94.8% of the annual targeted production for the year 2016-17.

The mulberry silk production was 3.8% more during 2016-17 over the last year. The bivoltine raw silk production achieved a record production of 5,266 MT during 2016-17 by registering 14.2% growth over previous year. Similarly, vanya silk, which includes Tasar, Eri and Muga raw silks, has achieved 12.8% growth during 2016-17 over 2015-16.

The area under mulberry during 2016-17 was up by 3.9%

The State-wise production of Raw silk during the years 2013-14 to 2016-17 and for the year 2017-18 (Till November-17) are given in **Annexure-I**.

Raw Silk Imports:

The quantity and value of raw silk imported during years 2014-15 to 2016-17 and for the year 2017-18 (till November-17) are given below:

Year	Quantity (MT)	Value (Rs. in Crores)
2014-15	3489	970.82
2015-16	3529	1006.16
2016-17	3795	1092.26
2017-18*	2669	835.90

Source: DGCIS, Kolkata.

* Figure indicated for the period of April-November 2017 (Provisional)

Exports:

The silk goods export earnings have been decreased over the years due to global recession and reduction in demand for silk goods in western countries (Western Europe and the USA, which are the major consumers of silk goods). However, the silk exports are picking up to the non-traditional/new markets such as the UAE, Nigeria, Sudan, Thailand etc., which is an encouraging sign. The export earnings during 2016-17 were Rs. 2,093.42 crores. Export values of silk goods during the last 3 years 2015-16 & 2016-17 and for the year 2017-18 (till Nov'17) are given below:

Items	(Rs. in Crores)		
	2015-16	2016-17	2017-18 (p) (Apr 17 to Nov 17)
Natural Silk Yarn	30.31	15.33	3.23
Silk Fabrics	1280.60	1051.65	231.09
Readymade Garments	1078.39	864.33	638.57
Silk Carpet	16.88	63.78	7.25
Silk Waste	89.80	98.33	60.58
Total	2495.98	2093.42	940.72

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 compared to 8.25 million persons in 2015-16, indicating a growth of 3.15%.

Annexure- I

State wise Raw Silk production during the last 5 Years (2013-14 to 2017-18)

(in MT)

#	State	2013-14 Achmnt.	2014-15		2015-16		2016-17		2017-18 (P) (Till Nov.-17)	
			Target	Achmnt.	Target	Achmnt.	Target	Achmnt.	Target	Achmnt.
1	Karnataka	8574	8850	9645	10000	9823	11000	9571	11120	5962
2	Andhra Pradesh	6912	6458	6485	5700	5086	5505	5970	6090	4466
3	Telangana		87	101	150	116	150	119	160	56
4	Tamil Nadu	1120	1739	1602	1920	1898	2000	1914	2000	1307
5	Kerala	4	6	7	9	11	10	11	12	6
6	Maharashtra	122	378	221	250	274	285	259	328	184
7	Uttar Pradesh	188	152	236	257	256	280	269	300	147
8	Madhya Pradesh	195	222	248	215	257	275	111	230	25
9	Chhattisgarh	391	301	234	253	263	290	361	405	401
10	West Bengal	2079	2417	2500	2567	2391	2706	2565	2590	1628
11	Bihar	52	74	53	65	67	84	77	85	9
12	Jharkhand	2003	2197	1946	2210	2284	2624	2631	2744	990
13	Odisha	53	111	98	120	117	130	125	140	16
14	Jammu & Kashmir	136	217	138	135	127	170	145	180	132
15	Himachal Pradesh	25	40	30	30	32	40	32	40	25
16	Uttarakhand	22	37	29	30	30	38	34	44	19
17	Haryana	0.13	2	0.3	1	0.6	2	1	2	0.43
18	Punjab	4	14	4	1	0.8	5	3	6	3
19	Assam & Bodoland	2766	2939	3222	3810	3325	4103	3811	4705	2723
20	Ar.Pradesh	15	38	12	40	37	48	45	58	46
21	Manipur	487	737	516	560	519	503	529	560	243
22	Meghalaya	644	776	656	835	857	900	927	1070	986
23	Mizoram	44	54	50	65	64	82	76	100	81
24	Nagaland	606	599	619	715	631	690	678	770	450
25	Sikkim	0.20	13	8	7	6	16	9	17	-
26	Tripura	40	43	48	56	52	65	75	85	48
Total		26,480	28,500	28,708	30,000	28,523	32,000	30,348	33,840	19,954

(p): Provisional