

**CENTRAL SILK BOARD
BENGALORE – 560 068**

**MINUTES OF THE ANNUAL ACTION PLAN MEETING HELD
ON 5th AND 6th March, 2019 AT CSB HQ, BANGALORE**

The Annual Action Plan Meeting of Central Silk Board for the year 2019-20 was held on 5th and 6th March 2019 at Central Silk Board, Bangalore. Dr. R. K. Mishra, Director (Tech) welcomed the Chairperson, Shri Rajit Ranjan Okhandiar, IFS, Member Secretary, Central Silk Board and the participants to the meeting. The list of participants is enclosed as **Annexure I**. He informed the house that the present meeting was vital for CSB to achieve the target raw silk production of 38,500 by 2019-20 with bivoltine raw silk of 8,500 MT and Vanys silk contribution of 11,500 MT respectively. Accordingly, the R&D and TOT programmes are to be implemented with more focus on productivity enhancement. As per the targets set, a minimum of 50 research projects are to be initiated during 2019-20. To achieve these targets, Central Silk Board has committed to the Ministry of Textiles to undertake the following actions:

- To take up collaborative research with reputed National and international research organizations
- Linkage with KVKs for extension activities in sericulture
- Research on seri by-product utilization for different purposes like poultry feed, sericin for cosmetic applications, diversification of products, utilization of silk for non-woven applications, silk denim, silk knits for value addition
- Upgrade seed multiplication facilities and encourage private participation in Bivoltine seed production
- Upgrade reeling technology and to promote indigenously developed Automatic Reeling Machines and improved Vanya reeling devices under Make in India programme
- Promote silk mega-clusters
- Development of mobile Apps, etc

In his opening address to the scientists, the Member Secretary stressed on the effective utilization of the available resources in the Institutes including the manpower, especially the newly recruited scientists. He showed his concern on relatively less inter-institutional collaborations, and stressed on involvement of industrial partners in the R&D and product diversification. The functional modalities need to be worked out with clear legal frameworks to facilitate quick and effective transfer of technologies. He emphasized on preparedness by the Institutes and Seed Organizations for the visit of Inter Ministerial Task Force and to strictly comply with the observations of the Technical audit. He reiterated the development of a panel of experts (scientists and technical assistants) for utilization of their expertise both at national and international levels.

He further informed that in addition to the thrust areas already circulated by CSB to all Institutes, emphasis should be given to the following focus areas.

- Development of climate resilient breeds and varieties.
- Technology for water and soil conservation / nutrition management.
- Integrated farming system to double the income of the farmers.
- Use of non-conventional energy to reduce environmental impacts.
- Mechanization and man-power saving methods.
- By-product utilization.
- Promotion of national and international and inter-institutional collaborative projects.
- Increased participation of state and private organizations in seed multiplication.

(Action: All R&D Institutes & Seed Organizations)

He then initiated the meeting as per the agenda items. Progress made on various aspects of research and development during 2018-19 was reviewed and proposals for the year 2019-20 were considered. The decisions / suggestions emanated from the discussion are as follows:

- Geo tagging of all CSB assets and those supported by CSB under various schemes should be done before May 2019.
(Action: All R&D Institutes & Seed Organizations)
- Standard Operating Procedure for preparation of mulberry tea/cocoon for medical use to be prepared.
(Action: RCS, CSR&TI, Mysore)
- As per the suggestions of the RCC, to initiate the process of advertising and selecting research projects under extramural funding by CSB.
(Action: RCS, CO, Bangalore)
- Soil Health Card details to be uploaded on UMANG app of Govt. of India for better utility.
(Action: All R&D Institutes)
- All projects including those funded by DBT/DST/ any other agencies should be routed through RCS and should be cleared by RAC of the respective Institute and finally ratified by the RCC.
(Action: All R&D Institutes)
- Reasons for not achieving the target set for research projects, ECPs and Training programs during 2018-19 needs to be assessed and necessary remedial measures are to be taken by all concerned Institutes to ensure achievement of the targets during 2019-2020.
(Action: All R&D Institutes & Seed Organizations)
- Project-wise expenditure should be maintained by Principal Investigator of all the research Projects. A separate register containing allocation and utilization of resources including manpower, chemicals, instruments, travel etc. should be maintained for each of the projects. Upon transfer/retirement of any scientist, the register along with other records including materials/ project output etc., along with the Charge Note should be handed over to the Co-Investigator or any person designated by the Director, without which No Objection Certificate should not be issued by the concerned in-charges/sectional heads. Non-compliance to the suggestion should be viewed seriously and appropriate action may be taken. RCS may issue a Note in this regard.
(Action: RCS, CSB, Bangalore and all R&D Institutes & Seed Organizations)
- In compliance to the decisions taken during 62nd RCC meeting, soft copies of the research project proposals shall be shared amongst other CSB institutes in mulberry sector for reference and also for consideration while proposing the new project proposals. Hence forth, all the R&D institutes should submit the soft copies of the project proposals and the final reports to RCS, CO, CSB.
(Action: All R&D Institutes)
- All concept notes should accompany with a flow chart indicating the origin and further developments of the concept. Need based research only to be taken up.
(Action: All R&D Institutes & Seed Organizations)
- Assign the task of exploring the possibility of integrating sericulture with agriculture crops with possible support/assistance from Agriculture departments to RECs.
(Action: All R&D Institutes & Seed Organizations)

- Several serious observations were made by the Technical Audit Team during the Technical / Scientific audit of research projects concluded during the last five years. Appropriate action should be initiated on the observations of the Technical Audit Team on or before 15th April 2019 and communicated to this office for perusal of Inter-Ministerial Task Force (IMTF) constituted by MoT, to review the research progress of CSB. Hence, it is necessary to prepare well for presenting the research outcomes to the committee as and when the team visits. Besides, CSB institutes were advised to revise and resubmit the Annual Action Plans for the year 2019-20, based on the observations of the Technical Audit Team.

(Action: All R&D Institutes & Seed Organizations)

- Every scientist working in Institute should have at least two projects (at least one project as PI). However, those engaged in PMCE and Training may associate with at least one project.

(Action: All R&D Institutes)

- New innovative research work has to be initiated involving the newly recruited scientists. Industrial participation in the research projects should be encouraged/ strengthened, especially in post cocoon research/extension.

(Action: All R&D Institutes & Seed Organizations)

- Rain fed sericulture should be given a thrust. Explore the possibility of outsourcing experiments which need expensive equipment/Instruments and expertise.

(Action: All R&D Institutes)

- In order to effectively utilize the huge investments made in the seed and pre-cocoon sectors under NERTPS in North-Eastern India, all efforts should be made to strengthen the Post Cocoon sector. This would ensure inclusive growth of the silk sector.

(Action: NERTPS Cell & CSTRI Bangalore)

- Six seed production units were established/ strengthened in the North-Eastern regions, which should be used efficiently.

- During the next National Seed Committee meeting, the uniform quantum of silkworm seed for all regions should be fixed.

(Action: Seed Cell, CO; Seed Organizations)

- In respect of some of the construction/ repair proposals as a deposit work, as received from various CSB units for the financial year 2018-19, it is decided that the same may be reviewed once again taking into the actual requirement. The revised estimates to be resubmitted by the respective units.

(Action: All CSB units)

- A panel of experts/ para-professionals who have retired from Board service has to be prepared immediately so that their expertise can be utilized as and when required and also to forward the list to Foreign Affairs section and DOSs for needful.

(Action: CBT section, CO, Bangalore)

- Based upon the technical audit report pertaining to the projects on ecorace characterizations / biodiversity of CMERTI and submission of their outputs to CMERTI, a Videoconference may be arranged with Director, CSR&TI Pampore, CMERTI Lahdoigarh and Dr. Rajesh Kumar to address various issues for meaningful conclusion of the said projects.

(Action: RCS, CO, Bangalore)

- Impact of various training programmes imparted need to be assessed and ISEC may be contacted for the third-party evaluation.
(Action: CBT section, CO, Bangalore)
- Each Scientist / Technical Assistant of RSRS should adopt a village and develop it.
(Action: All R&D Institutes)
- Training information viz., list of trainees, duration, subject etc. on various trainings conducted by CBT section of CSB & other R&D institutes should be uploaded on to the website of CSB/ R&D institutes. The data base thus prepared should be regularly uploaded.
(Action: CBT section / Computer Section, CO, Bangalore)
- Success stories should be documented and uploaded on to the websites of CSB/ R&D institutes.
(Action: All R&D Institutes/Seed Organizations/ Publicity Section, HQ, CSB, Bangalore)
- To utilize the e-library facilities, the National Knowledge Network (NKN) under NIC may be contacted as NKN offers free facilities to research institutes. Accessibility to a number of important international journals can be obtained through NKN. If needed, CSB can take the license/permission for multiple users.
(Action: All R&D Institutes / Computer section, HQ, CSB, Bangalore)
- Results/findings of all the completed projects to be uploaded in the websites of CSB/ R&D institutes.
(Action: All R&D Institutes / Computer section, HQ, CSB, Bangalore)
- Efforts should be intensified to get at least 50% of the DCB arrears cleared within six months. Help may be taken from NERTPS Cell for the North-Eastern states and respective ROs. The Technical section may look for the feasibility of recovery of DCB from the unspent CDP/CSS funds with different States.
(Action: All Seed Organizations / NERTPS Cell, HQ, , Technical Section, CSB, Bangalore)
- Hot air conveyer drier should be installed at RMB, Chaibasa at the earliest.
(Action: CSTRI, Bangalore)
- All RSRSs should take up adaptive projects to fine tune technologies, including testing varieties and breeds and technologies that emanate from Main Institutes, besides addressing region specific issues.
(Action: All R&D Institutes)
- Hand book of sericulture should be prepared for all types of vanya silks, viz., Eri, Tasar and Muga, on the lines of similar publication for mulberry. Director, CSR&TI, Mysore to immediately take up revision of the Handbook.
(Action: All R&D Institutes/ Publicity Section, HQ, CSB, Bangalore)
- The expenditure of the institutes should be booked under different heads/ sub-heads of Silk Samagra for proper accounting. Research project-wise maintenance of accounts should be taken up all the Institutes.
(Action: All R&D Institutes)
- Keep separate budgetary provisions to organize events proposed under VIP references. This should be in addition to the ECP events already proposed.
(Action: All R&D Institutes)

- To compile all the socio-economic studies conducted in sericulture sector by CSB institutes latest by 30.4.19 so as to formulate a common module for taking up such studies from CO by involving organizations like ISEC, Bangalore.

(Action: All R&D Institutes and RCS, CO, CSB)

- As ample awareness has been created under Swacha Bharath, it was suggested to take up physical activities for improvement of cleanliness in nearby sericulture villages, schools, Swachh Resham Grams adopted by the Institutes, etc.

(Action: All R&D Institutes and RCS, CO, CSB)

- Accounts section shall finalize and make available the BE/ budget allocation under various heads to all the R&D institutes for the year 2019-20 under intimation to RCS for monitoring.

(Action: Director [Finance] & RCS, CO, CSB)

- All Institutes should upload the Soil health card on the "Umang" portal of Gol.

(Action: All R&D Institutes and RCS, CO, CSB)

Institute specific decisions

CSR&TI, Mysore:

- Standard operational practices (SOP) should be worked out to produce organic mulberry leaf for preparation of mulberry leaf tea. Economics should be worked out for its linkage with the tea production. However, developing protocol to produce organic silk need not be the immediate focus.
- Development of protocol for taking up production of Medical quality mulberry cocoon should be prioritized. Utilization of pupa for fish/poultry feed may be popularized and that of cattle-feed may be rethought.
- Commercialization of process for extraction of ALA from pupa should be expedited.
- Recommendations of Technical Audit and Brainstorming workshop on mulberry leaf tea should be implemented.
- Technology developed for controlling African snail should be popularized in the affected areas. Similarly the pheromone based trap developed against Leaf Roller should be validated and popularized immediately.
- To explore commercialization of use of Chawki Feed Supplement Formulations (CFSFs). ToT should be taken up with Private CRCs.
- To expedite field trials with productive bivoltine silkworm breeds/ hybrids tolerant to BmNPV.
- To take up the business models for enterprises in pre-cocoon sector with bankers for lending.

CSR&TI, Berhampore:

- Efforts should be made to introduce additional silkworm crop during the lean period in North and North Eastern India to not only increase the silk production but also the economics of farmers.
- Take up breeding for white fly resistant mulberry using the identified resistant accessions.

- Explore the possibility of getting financial assistance from Horticulture Department and DoS for popularizing the drip irrigation through ToT.
- Plastic collapsible mountages should be introduced together with shoot rearing technology in East and North-Eastern region.

CSR&TI, Pampore:

- Success stories to be submitted to C.O. on regular basis. One-minute videos may also be prepared on success stories.
- Final reports of the AICEM-phase III should be submitted immediately.
- Efforts to introduce an additional crop in North and North-Western regions, especially during summer season, have to be intensified.
- Collect information on dfI production and distribution by states under its jurisdiction.

SBRL, Kodathi:

- Since transgenic silkworm developed have not been taken into field due to stringent regulatory mechanism in India, further research on transgenesis may be put on hold and the current focus should be to develop silkworm and mulberry breeds resistant to diseases and pests through marker technology.
- As stated in the Technical Audit report, the output of the projects should be utilized for developing technologies/ breeds for field utilization.
- Basic functional genomics studies may be outsourced to other research Institutes/universities.
- Take up R&D projects on biomaterials with other Organizations.
- Studies to develop Bio-sensor based technology to test the purity of silk garments need to be taken up in collaboration with expert groups working in this field.
- Studies on VgR and its utilization on enhancement of fecundity in Muga silkworm may be taken up in collaboration with CMER&TI, Lahdoigarh.
- Undertaking of research projects on molecular characterization of genetic resource in collaboration with CSGRC Hosur to be expedited.

SSTL, Kodathi:

- Focus more on developing technologies for the vanya sector as seed sector of vanya silkworms needs more attention.
- Based on the information generated, SSTL shall provide information on temperature and humidity requirements for muga egg production and preservation to CMER&TI/MSSO.

CSGRC, Hosur:

- As decided during the 62nd RCC meeting a meeting of the previous Directors of CSGRC Hosur along with a few experts may be convened in March to chalk out a strategy for efficient conservation and utilization of the genetic resources.
- Proposal for establishment of the boundary wall may be submitted to CO immediately.

CTR&TI, Ranchi:

- To expedite comparative efficacy of cocoonase extracted by CTR&TI with all variants of commercially available cocoonase in the market for softening/ cooking of tasar cocoons.
- During the next RAC/ Extension Officers'/ MKSP Review meeting, MKSP Co-ordinator may arrange the presentation of the process of value chain analysis by the consultant hired for documenting value chain analysis to CTR&TI Scientists/ DOS Officers besides the Nodal Officers/ Project Officers nominated from CSB under MKSP Tasar projects.
- Shall freeze the most ideal tasar cocoon cooking method and also the cooking device in collaboration with CSTRI, to recommend an integrated package for cooking and reeling of tasar cocoons. If required, may collaborate with other expert groups.
- To initiate necessary action pertaining to pending issues pertaining to the project dealt by Dr. Kiran Kumar, Scientist-D. In absence of compliance, necessary disciplinary action may be initiated by Director, CSR&TI, Mysore.
- Cultivation of *Lagestromia speciosa* may be popularized by intimating all the DOSs about its merits including the results of comparative rearing trials at different locations. CTR&TI to coordinate raising of sufficient number of saplings of *L. speciosa* under ToT for supply to the DoSs. On receipt of the details from CTR&TI, CO, CSB shall write to MoEF & CC, Govt of India to include *L. speciosa* as a host plant for tasar cultivation and its inclusion in Forest Conservation Act and the like.
- CTR&TI to map the areas suitable for various tasar eco-races in Jharkhand, Chhattisgarh, Odisha, Maharashtra, AP and Telangana along with multiplication/ conservation strategy for their sustainable exploitation. The information may be submitted to C.O by May 15, 2019, to organize a Video Conference for its adoption by various DOSs together with the data on production of silk from the natural collections.
- To validate the effectiveness of the LAMP Technology to detect Pebrine infection, samples to be supplied to CSR&TI Mysore.

CMER&TI, Lahdoigarh

- CMER&TI on priority should focus on formulating the research projects to address the field problems in muga and eri sector viz., low fecundity and poor hatching in unfavorable seasons, impact of climate change on seed production, diseases/ crop failures, seed scarcity due to problems in rainy/ summer seasons, utilization eri pupae including its packaging, preservation etc.
- Director (Tech) along with the Scientist from RCS should visit CMER&TI at the earliest to review the concept notes submitted by the Institute to ensure that the research proposals on the above field problems are posed. Emphasis should be given to breed and variety development and addressing issues related to seed production.
- CMERTI shall integrate the cold preservation of muga seed cocoons for 40 days developed by the institute with the short term preservation of muga silkworm seed developed by SSTL and take it to field in coordination with MSSO to address the seed related issues in unfavorable seasons. Similarly, the project outcome of SSTL & IIHR on use of volatiles to bring down the egg retention and to increase fecundity may also be put in to use.

- Mapping of natural flora & economic plantation of muga host plants with details of population size, relate the climatic conditions suitable to muga silkworm rearing and presence of muga silkworms etc., in different states of North-Eastern regions of India & also other potential states like Uttarakhand, Madhya Pradesh etc., should be taken up and report be submitted to Central Office latest by 1st May 2019.
- Collection of wild strains of muga silkworms should be continued for breeding programme.
- Oak tasar seed production should be taken over by BTSSO in due course. Till then, oak tasar seed production issues should equally be shared by CTR&TI Ranchi (at RSRS Bhimtal, which will finalize the oak tasar silkworm seed production protocol in consultation with RSRS Imphal) and by CMERTI (at RSRS Imphal, for which Dr. Debraj, Scientist-C and one TA, may be exclusively deployed) to meet the oak tasar seed requirement. BTSSO to associate from now onwards.
- Efforts to be made to take up Eri culture in the Southern India as Castor is available in plenty in the waste lands, for which suitable canning process for pupa preservation needs to be developed. To identify industrial partners for the same.

CSTRI, Bangalore:

- Proposal for developing and setting up a Eri mini spinning mill may be submitted.
- Explore the possibility of finding appropriate industrial partners for commercializing sericin coated wool, with specific role clarity and revenue sharing including IP rights.
- Grading of tasar raw silk yarn has to be expedited and similar grading may also be introduced for Muga and Eri silks. Further, the comparative grading/ testing parameters including neatness should be made with tasar silk being imported from China.
- Eri Silk from Paraguay to be compared with Indian eri silk and if required develop means to improve the Indian eri silk quality.
- Explore the possibility of making and marketing potentials of Melange by mixing mulberry, Tasar, Eri and Muga together.
- To extend the cooking technology developed for cocoons produced in high temperature and high humidity to CSR&TI, Berhampore & Mysore for its utility in the states of West Bengal, coastal region of AP and rainy seasons in MP and other similar states.
- Antigen–Antibody biosensor based technology for testing the purity of silk may be developed in collaboration with SBRL, Kodathi. Study with different types of silks may be taken up in the 2nd phase.
- A web-based reporting mechanism (monthly) to be developed by CSTRI on the functioning of ARM with details of production, recovery, renditta, disposal of raw silk/ pupae/ silk waste, etc. To ensure profitable operation of ARMs and to avoid units becoming sick, details on a monthly basis should be uploaded by the ARMs concerned on suitable ICT platform on CSTRI/ CSB website. Mr. P. Kumaresan, Scientists-D, may prepare the format and supply to CSTRI for collecting and uploading the data into the Website.
- To work out the Techno-economics of automatic silk reeling machine and submit to CO by April 2019.

- To furnish detailed report on staff involved in testing of silk and fabric samples, year-wise samples tested, revenue generated etc., so as to review/ revise the testing charges every year. CSTRI may send a proposal for using the revenue for developing test centers of silk, engagement of project assistants to run them etc., to pursue with MoT.
- Based on the claims made, Dr. Mathiazhagan, Scientist-D, CSTRI May be advised to take up a project on eri pupae utilization, preservation and packing.

NSSO, Bangalore:

- A new cold storage to be set up at Gottigere, Bangalore. Cold storage may be extended free of cost to RSPs for two years only as handholding and charges may be levied thereafter. NSSO may furnish the silkworm seed production/supply vis-à-vis raw silk production trends in the last two years, in major states including Maharashtra (in order to verify the claim that extent under mulberry has been increasing in the state since 2016).
- State-wise basic seed supply (P1) and the production of commercial seed (F1) by the states concerned may be reviewed and furnish a report to C.O.
- Silkworm seed dealers may be employed for selling of seeds. To start with, the concept may be tried in West Bengal. Online sale of silkworm seed may also be explored. Detailed report may be furnished to CO by May 2019.
- System of outsourcing to implement CSB's Seed Act including employing Seed Officer may be completed in 2 months.
- To finalize the modalities for exporting of hybrid silkworm eggs to different countries.
- Image processing for cocoon sorting and sex separation may be finalised.
- To explore the possibilities of installing Scale-suction machine developed by CSR&TI, Mysore in all SSPCs.
- To ensure and enforce uniform fecundity (number of eggs/dfl) norms across the multiplication levels and breeds. As per the existing norms of Hybrid Authorization Committee, 600 eggs/dfl for Bivoltine, 500 eggs/dfl for Cross breed and 400 eggs/dfl for multivoltine, be adhered to. All the DOSs may be notified on this.
- The proposal of withdrawing from production of PM based cross breed dfls was agreed. The production target of bivoltine hybrid dfls of 400 lakhs was appreciated.

BTSSO, Bilaspur:

- BTSSO should plan the requirement of tasar silkworm seeds in consultation with stake holders well in advance.
- Multiplication at various levels of tasar silkworm seed production, especially nucleus to basic seed may be reviewed vis-à-vis state-wise raw silk production. The outcome may be placed as separate agenda point in ensuing JCC along with views/ justification of DOSs. The States who demand more basic seeds, not commensurating with their silk production targets, should do so with justification.

- PPCs may be visited regularly to monitor the multiplication and their activities. Make graphical representation of the performance of PPCs adopted by BTSSO (before and after adoption) vis-à-vis non adopted PPCs. States may be requested to rename the PPCs.
- State-wise target of silk production to be communicated to all Directors, DoS and Seed Organizations and feedback from them may be obtained.
- The proposal of producing 16.22 lakh Nucleus, 20.1 lakhs Basic (through its units) and 14.85 lakh commercial seed (through the adopted Private Graineurs) was approved.

MSSO, Guwahati

- Performance of eri silkworm seed cocoon generation on different host plants viz., castor, tapioca, kesseru etc., and seed production may be reviewed and reported.
- To review the infrastructure and staff strength at the existing P4 and P3 units and to propose for any additional requirement of staff.
- Target of dfl production in ESSPC at Bongara and Hosur should be revised to 3.5 lakhs.
- The proposal of producing 1.248 lakh P3 basic seed, 1.352 lakh basic seed (other than P3) and 3.05 lakh of Muga commercial seed through its units and at adopted units was approved.
- Similarly, proposal to produce 60000 basic seed and 5 lakh of eri commercial seed through its units was approved.

The meeting ended with thanks to the chair.


 (Sri. Rajit Ranjan Okhandiar)
 Member Secretary

Place: Bangalore
 Date: 18th March, 2019.

**CENTRAL SILK BOARD
BANGALORE-560 068**

**LIST OF PARTICIPANTS ATTENDED THE ANNUAL ACTION PLAN MEETING 2019-20
HELD ON 5th & 6th March, 2019 AT CSB, BANGALORE**

1. Sri. Rajit Ranjan Okhandiar, Member Secretary, CSB, Bangalore
2. Dr. NarendarRebely, IRS, Director (Finance), CSB, Bangalore
3. Dr. R.K. Mishra, Director (Tech), CSB, Bangalore
4. Dr. R.S. Teotia, Director, CSR & TI, Mysore,
5. Dr. V.Sivaprasad, Director, CSR & TI Berhampore
6. Dr. Sukhen Roy Chowdhury, Director, CSR & TI, Pampore
7. Dr. Alok Sahay, Director, CTR&TI, Ranchi.
8. Dr. Jyotsna Tirkey, Director, CMER&TI, Lahdoigarh
9. Dr. Subhas Naik, Director, CSTRI, Bangalore
10. Dr. R.B Sinha, Scientist-D, BTSSO, Bilaspur
11. Dr. D.S. Somaprakash, Scientist-D, CSGRC, Hosur
12. Dr. S.Vidyunmala, Scientist -D, SSTL, Bangalore
13. Dr. K.M. Ponnuvel, SBRL, Kodathi ,
14. Dr. K.S. Nair, Scientist-D, NSSO, Bangalore
15. Dr. P. Borpuzari, Scientist-D, MSSO, Guwahati
16. Dr. S. Manthira Moorthy, Scientist-D, CSR&TI, Mysore
17. Dr. P Sudhakara Rao, Scientist-D, SSTL, Bangalore
18. Dr. A. Ramesha, Scientist-B, SBRL, Bangalore
19. Dr. Geetha N Murthy, Scientist-D, CSGRC, Hosur
20. Dr. Ranjana Das, Scientist- D, CMER&TI, Lahdoigarh

Board Secretariat

1. Shri. A. Manoharan, Joint Director (Finance), CSB, Bangalore
2. Shri. Moncy Issac, Joint Secretary (Tech), CSB, Bangalore
3. Dr. C.M. Bajpeyi, Scientist- D, CSB, Bangalore
4. Dr. P. Kumaresan, Scientist-D, CSB, Bangalore
5. Dr. K. Sathyanarayana, Scientist-D, CSB, Bangalore
6. Dr. K. Vijayan, Scientist- D, CSB, Bangalore
7. Dr. V.K. Rahamatulla, Scientist-D, CSB, Bangalore
8. Dr. Joy N John, Scientist-D, CSB, Bangalore
9. Shri. M.N. Ramesha, Deputy Director (Pub), CSB, Bangalore
