

## **Minutes of the 47<sup>th</sup> Meeting of Research Advisory Committee held on 9<sup>th</sup> January, 2018 at CSR&TI, Berhampore, West Bengal**

The 47<sup>th</sup> meeting of Research Advisory Committee of CSR&TI, Berhampore and the second meeting of the reconstituted RAC was held under the Chairmanship of Dr. Chirantan Chattopadhyay, Vice Chancellor, Uttar Banga Krishi Viswavidyalaya, Coochbehar, West Bengal.

Dr. D. Pandit, Scientist-D welcomed Dr. Chirantan Chattopadhyay, Chairman, distinguished members of the RAC, invitees, Scientists of the Institute, nested RSRs, RECs and other participants.

Dr. Kanika Trivedy, Director, in her introductory remarks, expressed sincere thanks to Dr. Chirantan Chattopadhyay and all the members for participating in the RAC. At the outset, Director requested all the members of RAC for active interaction and valuable suggestions to the scientists of the Institute. Thereafter, she presented the highlights of the R & D interventions and achievements made during last six months by the scientists of the Institute and nested units.

Dr. Chirantan Chattopadhyay, Chairman, RAC in his opening remarks extended New Year greetings and expressed his thanks to Kanika Trivedy, Director, CSR&TI, Berhampore, Member-Convenor, RAC, distinguished members and participants, State representatives and especially the scientists of the Institute for their untiring efforts in R&D interventions benefitting the stakeholders. He pointed out that, the scientists should first analyze market requirements and accordingly formulate research projects addressing those aspects. He advised all the scientists should work together to take sericulture to an industry level so that, sericulture farmers will be transformed to sericulture industrialists.

List of participants are appended in **Annexure – I**.

Thereafter, agenda-wise items were taken up for discussion.

### **ITEM NO.1: Confirmation of the Minutes of 46<sup>th</sup> meeting of Research Advisory Committee (RAC) held on 21-22, Aug., 2017 at CSR&TI, Berhampore**

One comment was received from Dr. S. Nirmal Kumar, RAC member regarding activities of Bivoltine CPP and Training Division which was not reviewed by the RAC due to shortage of time but was included in the minutes as progress of the activities was found as per milestones. This is due to oversight and care will be taken in future. Otherwise, the minutes were confirmed.

### **ITEM NO. 2: APPROVAL OF NEW RESEARCH PROJECTS.**

Three new research projects were critically reviewed and decisions were as follows:

1. Title of the Project: **Molecular characterisation, assessment and validation of the efficacy of low molecular weight peptides isolated from mulberry leaf against major silkworm diseases (Collaboration with University of North Bengal, Siliguri)** – Ms. Pooja Makwana, Scientist-B, Biotechnology division.

**Duration:** 3 years

#### **Observation/ Suggestion:**

- The title should be suitably modified avoiding the term 'major silkworm diseases' as the proposed methodology clearly indicates that it is targeting only Flacherie and Muscardine diseases of silkworm excluding the pebrine disease.

- The PI should consider performing the bioassay studies on a larger scale basis to study the efficacy of the low molecular weight peptides.

**Decision of RAC: Approved for 3 years** after following the above suggestions. The PI was advised to modify the project in accordance to the above suggestions and submit the modified project for onward transmission to the Central office, Bangalore for approval with Code No.

[Action: Ms. Pooja Makwana, Scientist-B, Biotechnology Division]

2. Title of the Project: **Management pink mealy bug *Maconellicoccu shirsutus* (Green) of mulberry with barrier system**– Dr. U. C. Baruah, Scientist-D, RSRS Jorhat

**Duration:** 3 years

**Observation/ Suggestion:**

- The PI should consider increasing the number of replications to maintain the minimum number of error degrees of freedom in the experiment.
- Avoiding the use of DDVP, the PI should consider safer chemicals (in the CIBRC website for control of mealy bug).
- The PI should consider incorporation of a physical barrier system and integrate the same with the experimental plan which reflects the poly guard barrier system.

**Decision of RAC: Approved for 3 years.** The PI was advised to modify the project in accordance to the above suggestions and submit the modified project for onward transmission to the Central Office, Bangalore for approval with Code No.

[Action: Dr. U. C. Baruah, Scientist-D, RSRS Jorhat]

3. Title of the Project: **Mass multiplication and maintenance of biocontrol agent – *Scymnus Pallidocolli* and its popularization at farmers' level**– Dr. S. Chanda, Scientist-D, Entomology Section

**Duration:** 3 years

**Decision of RAC: Approved for 3 years.** The PI was advised submit the project for onward transmission to the Central Office, Bangalore for approval with Code No.

[Action: Dr. S. Chanda, Scientist-D, Entomology Section]

## ITEM NO. 5: REVIEW OF CONCLUDED PROJECTS / PROGRAMMES / PILOT STUDY

**Five** projects, **one** programme and **one** pilot study were concluded during the period as per the time schedule. As these projects have already been concluded, however, project wise, following suggestions to be considered during the future course of action.

**General suggestions:**

- All project data should be presented with appropriate statistical analysis.
- While presenting the concluded projects, the PIs should briefly justify objective-wise result and conclusion for better time management.
- Graphical mode of presentation is more preferable than tabular presentation.
- Wherever applicable, indicate the benefit cost ratio (BCR).
- All concluded project should necessarily address
  - ✓ Inputs (resources used- budget allocation vis-a- vis actual expenditure, staff and materials utilized),
  - ✓ Implementation (activities vs outputs) and
  - ✓ Tangible utilization plan of the project outcome (Immediate, Intermediate and Long term).

- Concluded project report should be submitted to CSB after incorporating the suggestions made by RAC.
- No financial implications should be imposed on the budget of the R&D projects that are approved by the RAC. The house also advised that a person dealing with the financial aspects of the R&D projects should also participate in the meeting.
- RCC recommendations should comply while proposing the new project/prog.

**1. PIN 3587: Improvement of leaf quality and productivity through external application of seaweed extracts in mulberry-** Shri Anil Pappachan, Scientist-B, Mul. Physiology Section

The project has been concluded as per the milestones. However, the following suggestions were made:

- The pest incidence in treatment and control as reported by the PI is due to the natural incidence.
- The PI may take a study to elucidate the biochemical principles responsible for the enhancement of growth.
- The PI was advised to specify the cost of commercial seaweed extracts used in the present project required for unit area of mulberry plantation in the concluded report.
- The PI should consider taking up the same project on a larger scale considering the feasibility in relation to economics.

**[Action: Shri Anil Pappachan, Scientist-B, Mul. Pathology Section]**

**2. PIB 3481: Evaluation of mulberry varieties suitable for low input soil –** Shri D. Chakravarty, Scientist-D, MBG Section

The project has been concluded as per the time schedule. However, the house made the following suggestions:

- The soil fertility status has to be incorporated in the final report and the PI was also advised to analyze the results that were presented in the RAC meeting with respect to the fertility status of soil before arriving at a suitable conclusion.
- The PI should also take a note of improving nitrogen use efficiency, so that the variety responds even to a lesser input of nitrogen which is going to be the key trait in the coming days.

**[Action: Shri D. Chakravarty, Scientist-D, MBG Section]**

**3. PIB 3521: Assessment of promising powdery mildew resistant lines for perspective commercial use–** Dr. S. Chattopadhyay, Sci-D, Biotechnology Division

The project has been concluded as per the time schedule. However, the PI should justify the following

- Purpose of including SCAR markers in this study
- Proper correlation of F-2 genotypic and phenotyping data should be presented in the concluded report.

**[Action: Dr. S. Chattopadhyay, Sci-D, Biotechnology Division]**

**4. BPI (PS) 010: Identification of biochemical markers associated with thermotolerance in silkworm *Bombyx mori* L–** Ms.Pooja Makwana, Scientist-B, Biotechnology division

The pilot study has been concluded as per the time schedule. However, the PI should justify the following point from the concluded study:

- How bio-chemical markers are useful in improvement of breed?
- Whether it is appropriate to use the term biochemical markers instead of biochemical parameters which were studied?

**[Action: Ms. Pooja Makwana, Scientist-B, Biotechnology Division]**

**5. PRE-3517: Population interactions of pests and natural enemies in mulberry eco-system–** Dr.S. Chanda, Scientist-D, Entomology Section

The project has been concluded as per the time schedule. However, the PI was advised that

- Mixed effect models (Linear/Non linear) may be considered in analyzing the results of population interaction of pest and natural enemies with weather factors in the concluded report.

**[Action: Dr. S. Chanda, Scientist-D, Entomology Section]**

**6. AIT-3557: Multi locational trial on Transgenic BmNPV resistant silkworm strains to establish their efficacy and generate data for their regulatory approval”** [*Collaborative Project: with CDFD, Hyderabad and APSSRDI, Hindupur*] – Mr. G. C. Das, Sci-D, SWPhy&RTI and Bv Cell

The project has been concluded as per the time schedule. However, the following observations were made

- The PI should indicate why fecundity of the breeds is too low and are not following the breed norms.

**[Action: Mr. G. C. Das, Sci-D, SWPhy&RTI and Bv Cell]**

**7. B-JRH (P) - 040: Studies on mulberry germplasm in Agro climatic conditions in North-eastern states –** Smt. M. Pamehgam, Scientist-C, RSRS Jorhat (*Presented by Dr. U. C. Baruah, Scientist-D, RSRS Jorhat*)

The programme has been concluded as per the time schedule. However, the PI was advised to consider the following observations in the next proposal:

- Title should relate to the state of Assam as the mulberry germplasm is being maintained at Assam and not at all NE states.

**[Action: Smt. M. Pamehgam, Scientist-C, RSRS Jorhat]**

**ITEM NO. 6: REVIEW OF PROGRESS OF ON-GOING PROJECTS / PROGRAMMES / PILOT STUDY**

**General suggestions:**

- Objective wise highlights along with the trend(s) and a clear cut work plan for next six months should be presented henceforth
- Graphical presentation is desirable than tabular presentation
- Data must be analyzed statistically, wherever appropriate
- In case of collaborative projects, the concerned PIs (even from the collaborative Institutes) must necessarily be present to justify and interpret the obtained data.

**MAIN INSTITUTE**

**MULBERRY BREEDING & GENETICS SECTION:**

Progress of following 04 ongoing research projects and 01 program was reviewed.

- **PIB 3505-** Development of Drought Tolerant Mulberry variety for Rainfed Sericulture [Collaborative project with CSGRC, Hosur],

While reviewing the project, the PI was advised to justify the following points:

- ✓ Drought conditions should be specified henceforth while describing the results.
- ✓ Institute may create a 'rain out shelter' for conducting drought / thermal stress related experiments.

**[Action: Shri. K. Suresh, Scientist-B, MBG Section]**

- **PIC 3554-** Candidate gene based molecular marker(s) for screening promising recombinants in mulberry

- ✓ The mulberry genotype C9 (output of concluded project PIB 3481) should also be included in the study of PYT.

**[Action: Shri. K. Suresh, Scientist-B, MBG Section]**

- **PIB 3576-** Evaluation of New Mulberry Genotypes for Improvement in Productivity and Quality

- **PIB 3610:** Preliminary evaluation of newly evolved mulberry genotypes for mulberry improvement
- **BPI (P) 025-** Maintenance of Mulberry Germplasm Bank at CSR&TI, Berhampore (WB)  
Projects [PIB 3610 & PIB 3576] & programme [BPI(P) 025] were found as per the milestones.

[Action: Shri. K. Suresh, Scientist-B and Shri. D. Chakravarty, Scientist-D, MBG Section]

#### AGRONOMY AND SOIL SCI. SECTION:

Progress of following 06 ongoing research projects was reviewed.

- **PPA 3499:** Evaluation of field level performance of Vishala mulberry variety in different locations under irrigated conditions in West Bengal
- ✓ The PI mentioned that >15% increase in leaf yield was observed in Vishala as compared to S1635. However, presented data seems not reflecting the claim- which needs re-checking.

[Action: Shri G.C. Das, Scientist-D, SWPhy&RTI & BV Cell]

- **PPF 3585-** Application of Growing Degree Days as a model driver for developing mulberry yield weather model.
  - ✓ PI was advised to synchronize the pruning dates of mulberry with silkworm rearing. Correlation between temperature and body weight with respect to silkworm should be established.

[Action: Dr. Mahesh. R., Sci-B, Agronomy and Soil Sci. Section]

- **PPF 3598-** Arsenic contamination in mulberry sericulture of Bengal Plain and its alleviation through application of zinc in soil.
  - ✓ The PI was advised to conclude the project and present the same with proper justification in the forthcoming RAC meeting.

[Action: Dr. Vijay. V, Sci-B, Agronomy and Soil sci. Section]

Following projects were found to be as per the milestones.

- **PPA 3588-** Evaluation of Low Cost Drip Fertigation Systems on Yield and Quality of Mulberry Leaves.
- **PPS 3600-** Soil health card preparation for mulberry growing soils in Eastern and North-Eastern India, were reviewed and progress was as per the milestone.
- **PPS 3559-** Testing of carbon capturing efficiency of mulberry in different locations.

[Action: Shri. D. Chakravarty, Sci-D, Mori. Division and Concerned P.I.s]

#### SILKWORM BREEDING AND GENETICS SECTION:

Progress of following 05 ongoing research projects and 01 ongoing programme was reviewed and found as per the milestones.

- **AIB 3602:**“Development of thermotolerant bivoltine breeds / hybrids of silkworm, *Bombyx mori* L through marker assisted selection”
- **AIB 3545:** “Authorization trials of silkworm hybrids in Eastern and North Eastern states”
- **AIB 3616:** “On farm trial of the multivoltine silkworm breeds/ hybrids developed for high shell percentage and neatness of silk filament”
- **AIB 3619:** Development of silkworm (*Bombyx mori* L.) congenic breeds from a gene pool with higher genetic plasticity
- **AIB-3617:** “Identification of region specific bivoltine hybrids suitable for highly fluctuating and seasonally variable climatic conditions of Eastern and North-Eastern India (Phase-II)”
- **BAI(RP) 003:** “Maintenance of multivoltine and bivoltine germplasm”.

[Action: Dr. V. Lakshmanan, Sci-D / Dr. A.K. Verma, Sci-D, Mr. N. Chandrakanth, Sci-B, SBG Section]

## SILKWORM PHYSIOLOGY AND REARING TECHNOLOGY & INNOVATION SECTION

Progress of following 03 ongoing research projects was reviewed.

- **ARP 3605**- "Validation of the DNA markers in silkworm breed developed by introgression of DNA markers associated with NPV resistance using Marker Assisted Selection breeding and large scale field trial of the breed".[DBT funded Collaborative Project with Seri biotech Research Laboratory (SBRL), Bangalore, CSR&TI, Mysore & CSR&TI, Pampore]
  - ✓ The PI was advised to confirm the stability data of transgenic breed /hybrid in consultation with the SBRL, Bangalore.

Following collaborative projects were found to be as per the milestones.

- **AIB 3577**- "Evaluation of multivoltine germplasm to identify potential parents for developing cross breeds suitable for Southern and Eastern India."
- **AIB 3578**- "Evaluation of exotic bivoltine silkworm breeds to identify promising parental genetic resources".

[Action: Shri G.C. Das, Scientist-D, SWPhy & RTI and BV Cell]

## BIOTECHNOLOGY DIVISION:

Progress of following 02 research projects was reviewed and was found to be as per the milestones.

- **PIB-3548**- Evaluation of bacterial leaf spot resistant improved progenies of mulberry for field utilization
- **PRE 3589**- Assessment of designed antimicrobial peptides for mulberry protection against brown leaf spot and root rot: a biotechnological approach

[Action: Dr. Soumen Chattopadhyay, Sci-D, Biotechnology Division]

## ENTOMOLOGY SECTION:

Progress of following 01 ongoing research project and 01 ongoing programme was reviewed.

- **PRE 3533**- "Incidence of whitefly in mulberry germplasm accessions" was found to be as per the milestones.
- **BAR (RP) 022**- "Survey and Surveillance of Mulberry Pests in the Eastern and North Eastern regions of India".
  - ✓ The PI was also advised to monitor the neighbouring crops around the sampling zone for incidence of pests. This will help in analyzing the results more appropriately.

[Action: Dr. S. Chanda, Sci-D, Entomology Section]

## SILKWORM PATHOLOGY SECTION:

Progress of following two research projects and one programme was reviewed and was found to be as per the milestones.

- **ARP3522** - "Isolation, cloning and characterization of antibacterial protein (s) from silkworm, *Bombyx mori* L"
- **ARP 3590**- "Studies on the efficacy of phototrophic bacterial extracts as feed supplement for management of diseases in silkworm, *Bombyx mori* L"
- **BAR (RP) 021**- "Survey, surveillance and monitoring of silkworm diseases in seed and commercial crops in Eastern and North Eastern India. (In collaboration with RSRs, RECs, DoS and NSSO)"

Regarding the presentation made with respect to the **Non spinning syndrome**, it was advised to perform pesticide residue analysis as per the standard protocols. The help of BCKV in this regard may be sought.

[Action: Mr. Z. Hossain, Sci-D, Sw. Patho. Section]

### PROJECT MONITORING, CO-ORDINATION AND EVALUATION DIVISION

Progress of 01 ongoing research project "MTS 3599: Study on mulberry sericulture production in West Bengal: A statistical approach" was reviewed and was found to be as per the milestones.

[Action: Dr. Manjunatha, G.R., Sci-B, PMCE Division]

### EXTENSION AND PUBLICITY DIVISION:

Progress of following 01 ongoing research project and 02 ongoing programmes was reviewed and was found to be as per the milestones.

- "MOT-3601: Skill gap analysis and capacity building of sericulture extension workers and farmers in traditional and non-traditional states" was reviewed and found to be as per the milestones.
- B-MOE(P)-044: Adarsh Swachh Resham Gram Project at Mallickpur-Diara Village  
[Action: Mr. Shafi Afroz, Sci-B, Extn. Division]
- BMOE(P)-043: Seri Model Village - Presented by *Mr. D. Das*, Scientist-D  
[Action: Mr. D. Das, Sci-D, Extn. Division]

### REGIONAL SERICULTURAL RESEARCH STATIONS:

#### RSRS, Kalimpong:

Progress of following one research projects and one programme was reviewed and was found to be as per the milestones.

- PPS 3559- Testing of carbon capturing efficiency of mulberry in different locations.  
PI was advised to analyze the quality of mulberry leaves.
- B- KPG (RP) 017-Maintenance of Bivoltine silkworm germplasm.  
[Action: Dr. R. Kar, Sci-D, RSRS Kalimpong]

#### RSRS, Jorhat:

Progress of following two research projects was reviewed and was found to be as per the milestones.

- PPS 3559 - Testing of carbon capturing efficiency of mulberry in different locations.
- PPA 3622: Popularization of high bush mulberry plantation technology in Majuli, river island of the Brahmaputra, Assam

[Action: Dr. S.N. Gogoi, Sci-D, RSRS Jorhat]

#### RSRS, Koraput:

Progress following of five research projects was reviewed and was found to be as per the milestones.

- PPA 3560 - Studies on High Bush mulberry plantation under rainfed condition of Odisha.
- PPS 3559 - Testing of carbon capturing efficiency of mulberry in different locations.
- AIB 3614: Studies Evaluation and Identification of Suitable Bivoltine Hybrid for Odisha
- PPA 3613: Studies on drum-kit drip irrigation with hydrogel on yield and water use efficiency of mulberry
- MOE 3604 - Yield gap analysis in mulberry leaf and cocoon production-A study in Eastern Ghat Highland zones of Odisha.  
✓ Data with respect to yield gap analysis was not presented and the PI was advised to present the same in the forthcoming RAC meeting.

[Action: Dr. K.C. Brahma, Sci-D, RSRS Koraput]

### EXTENSION DIVISION:

Progress of extension activities was reviewed and was found as per the milestone.

[Action: In-charge, Sci-D, Extn. Division]

### BIVOLTINE CPP:

The activities of BV CPP & its progress were found to be as per the milestone.

[Action: In-charge, Sci-D, SWPhy & RTI and BV Cell]

**TRAINING DIVISION:**

The activities of Training Division in organizing various training programmes under structured and Non-structured courses were found to be as per the milestone.

[Action: In-charge, Sci-D, Training Division]

**Comments of RAC Chairperson and Members:**

**Dr. D.C. Ghosh, Member, RAC**, complimented the scientists for the progress made during the period. He advised to intensify the extension activities and scientists should always be thoughtful about the development of region specific technologies, as climatologically changes of seri-zones are quite different in eastern and north-eastern India.

**Dr. Somnath Bhattacharyya, Member, RAC**, complimented the scientists and suggested that the Director short-list representative projects for presentation before the RAC.

**Dr. Nirmal Kumar, Member, RAC**, congratulated the Director and complimented the scientists for their hard work and good presentation.

**Shri. Lakshman Munda, Representative of the Director of Textiles & Handlooms, Govt. of Orissa**, appreciated the research efforts of the Institute. As the mulberry sericulture in Odisha, is showing only reasonable success in some limited pockets, a 'ground zero survey' may be taken-up by the Institute to make sericulture more remunerative to Odisha farmers.

**Shri. Zakir Hossan, ADI, Representative of the Director, Directorate of Handloom & Sericulture, Govt. Of Bihar**, requested cooperation from CSR&TI, Berhampore in arranging training activities for the farmers of Bihar through Jeevika. He also requested for distributing training material in the regional language.

**Md. Samsul Haque, Rearing Representative (RAC)** expressed his satisfaction with N x (SK6 x SK7) hybrid which was developed by this institute. He shared his happiness in achieving ~ 61 kg cocoon yield / 100dfls during the last season, from which 6.1 kg silk was obtained. He also expressed his satisfaction over the benefit that is being harnessed by the farmers through the messages related to sericulture sent through mKisan portal by the institute. He brought to the notice of the DoS that the inputs being supplied by state government are not being received in time. He urged the DoS to supply organic fertilizers to the farmers.

**Md. Ebarat Ali, Reelers Representative (RAC)** expressed his happiness over participating in the meeting. He pointed out that reeling quality of Bv hybrid (SK6 x SK7) was not good and as a result, there was a decline in the prices obtained by the farmers. He also requested to bring out schemes for the development of the reeling sector.

**Dr. Rakesh Kumar Gupta, AD, (Rep. DoS, Chhattisgarh)** requested the scientists to develop region specific races. He also sought cooperation of the institute in organizing on campus training programmes. He expressed his happiness over the information that DoS farm of Chhattisgarh has been identified as one of the experimental centre for the forth coming AICEM trail.

**Mr. Anathnath Mondal, JD, (Rep. Commissioner, Textiles & Sericulture, West Bengal)** expressed his happiness over participating in the meeting. As the grainages of the state are facing the scarcity of multi-voltine races/parent (Nistari) for preparation of F-1 commercial dfls, he requested the institute to supply the same continuously to DoS, WB. Furthermore, he has ensured that the farmers will get the kissan credit cards and chawki charges of the eligible rearers at the earliest from the DoS, WB.



**Mr. Biplab Kr. Adhikary, AD (Ic), DOS, Murshidabad, WB** expressed his happiness over participating in the meeting. He ensured that more schemes connected to sericultural development will be launched/ re-introduced for benefit of stakeholders.

**Dr. Sukhen Roy Choudhury, Sci.-D, ZSSO (I/c), Raiganj** appreciated the scientists for their hard work. He suggested lying efforts to produce the parental components of F-1 dfls locally as the quality of seed cocoons are damaging while transporting from south to here.

**Dr. Chirantan Chattopadhyay, Chairman, RAC** expressed his sincere thanks to the RAC members, the Director of the Institute, Collaborators, farmers' representatives, scientists of the Institute and Invitees for their participation and active interaction in the meeting. He advised the scientists

- ✓ Research and Sericulture industry linkage needs to be strengthen further to sustain maximum benefits to farmers.
- ✓ To follow the recommendations made by the RAC.
- ✓ To concentrate on developing online courses related to sericulture which will be beneficial in skill development of the stakeholders.
- ✓ To formulate projects in relation to reduction of drudgery in Sericulture through automation.
- ✓ To concentrate research on the social science sector in line to market requirements and linking of kishan clusters with banking sector.
- ✓ To manage presentations of salient achievements with major results before RAC.

The meeting ended with the vote of thanks to the Chair and members of RAC.

**Director &  
Member Convenor, RAC**

**Approved**

(Dr. Chirantan Chattopadhyay)  
Chairperson, RAC  
CSR&TI, Berhampore  
Date:

**ANNEXURE -I****LIST OF PARTICIPANTS IN THE 47<sup>TH</sup> MEETING OF RESEARCH ADVISORY COMMITTEE (RAC) HELD ON 09.01.2018 AT CSR & TI, BERHAMPORE, WEST BENGAL**

<b>Sl. No.</b>	<b>Name</b>	<b>Designation</b>
1.	Dr. Chirantan Chattopadhyay, Vice Chancellor, Uttar Banga Krishi Viswavidyalaya, Pundbari, Coochbehar, West Bengal.	Chairman
2.	Dr. Kanika Trivedy, Director, CSR&TI, Berhampore	Member Convenor
3.	Dr. S. Nirmal Kumar, Former Director, Central Silk Board, Bangalore	Member
4	Dr. S. Bhattacharya, Professor, Bidhan Chanadnra Krishi Viswavidyalaya, Mohanpur,Nadia, West Bengal	Member
5	Prof. Dulal Chandra Ghosh, Former Professor of Agronomy, Viswa Bharati University, Bolpur, Birbhum, West Bengal.	Member
6	Mr. Anathnath Mondal, JD, (Rep. Commisioner, Textiles & Sericulture, West Bengal)	Member
7	Dr. Rakesh Kumar Gupta, AD, (Rep. DoS, Chhattisgarh)	Member
8	Shri. Zakir Hossan, ADI, (Rep. DOHS, Bihar)	Member
9	Shri. Lakshman Munda, (Rep. DOS, Odisha)	Member
10	Md.Samsul Haque, Rearers Representative, Nabagram, Murshidabad, West Bengal	Member
11	Md.Ebarat Ali, Reelers Representative, Kajigram, Malda, West Bengal	Member
12	Mr. Biplab Kr. Adhikary, AD (Ic), DOS, Murshidabad, WB	Invitee
13	Dr. Sukhen Roy Choudhury, Sci.-D, ZSSO (I/c), Raiganj	Invitee

<b>Absentee:</b>		
1	Dr. S. Mukhopadhyay, Principal Scientist & Head GIS&RS, ICAR-NBSS&LUP, Bidhan Nagar, West Bengal.	Member
2	Director(Tech.), CO, CSB, Bangalore	Member
3	Incharge, SCTH, Malda, West Bengal	Member
4	Director, DOS, Assam	Member
5	Director of Handloom, Sericulture & Handicrafts, Govt. of Jharkhand	Member
6	Director, Directorate of Sericulture, DoS, Mizoram	Member
7	Director, Directorate of Sericulture, DoS, Manipur, Imphal	Member
8	Director, DoS, Gangtok, Sikkim	Member
9	Director of Sericulture & Weaving, Government of Meghalaya, Shillong	Member
10	Director of Handloom, Handicrafts & Sericulture, Government of Tripura, Agartala, Tripura	Member
11	Director of Textiles and Handicrafts, Government of Arunachal Pradesh, Itanagar	Member
12	Director of Sericulture, Government of Nagaland, Kohima	Member
13	Director of Sericulture, BTC Assam	Member

**LIST OF SCIENTISTS/ PARTICIPANTS ATTENDED THE MEETING**

<b>Sl.No.</b>	<b>Name</b>	<b>Designation</b>	<b>Address</b>
1.	Smt. Chandna Maji	Scientist-D, Training Division	CSR&TI, Berhampore
2.	Dr. Subhra Chanda	Scientist-D, Entomology Section	CSR&TI, Berhampore
	Mr. N. B. Kar	Scientist-D, R & S Division	CSR&TI, Berhampore
3.	Dr. V. Lakshmanan	Scientist-D, SBG Section	CSR&TI, Berhampore
4.	Dr. T. Dutta (Biswas)	Scientist-D, Extension Division (Deputation)	CSR&TI, Berhampore
5.	Dr. S. Chattopadhyay	Scientist-D, Biotechnology Division	CSR&TI, Berhampore
6.	Dr. Dipesh Pandit	Scientist-D, PMCE Division	CSR&TI, Berhampore
7.	Dr. A. K. Verma	Scientist-D, SBG Section	CSR&TI, Berhampore
8.	Shri D.Chakravorty	Scientist-D, Moriculture Division	CSR&TI, Berhampore
9.	Shri Zakir Hossain	Scientist-D, Silkworm Pathology Section	CSR&TI, Berhampore
10.	Shri. Debojit Das	Scientist-D, Extension & Publicity Division	CSR&TI, Berhampore
11	Shri Gopal Ch. Das	Scientist-D, SWPhy & RTI and BV- Cell	CSR&TI, Berhampore
12	Dr. S. N. Gogoi	Scientist-D, RSRS	Jorhat, Assam
13	Dr. Ranjit Kar	Scientist-D, RSRS	Kalimpong, West Bengal
14	Dr. U. C. Baruah	Scientist-D, RSRS	Jorhat, Assam
15	Dr. K. C. Brahma	Scientist-D, RSRS	Koraput, Odisha
16	Dr. G. S. Singh	Scientist-D, REC	Bhandra, Jharkhand
17	Dr. Reeta Luikham	Scientist-D, REC	Imphal, Manipur
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36	Ms. Naga T. Shirisha	Steno, Director cell	CSR&TI, Berhampore
37	Shri. Sibanjan Ghosh	JRF, Mori Dvn.	CSR&TI, Berhampore
38	Shri. Sayantan Manna	JRF, Mori Dvn.	CSR&TI, Berhampore
39	Miss. Aurunima Banerjee	JRF, Mori Dvn.	CSR&TI, Berhampore
40	Mr. Maloy Laskar	JRF, MBG Section	CSR&TI, Berhampore
41	Ms. Upasana Datta	JRF, SBG Section	CSR&TI, Berhampore