वर्ष 2019-20 के लिए कार्य योजना
Action Plan for 2019-20

Physical Target

केन्द्रीय रेशम बोर्ड
केन्द्रीय मुगा एरी अनुसंधान एवं प्रशिक्षण संस्थान
(आईएसओ 9001: 2015 प्रमाणित संस्थान)
वस्त्र मंत्रालय : भारत सरकार
लाहदोईगढ़ - 785 700 : जोरहाट : असम (भारत)

CENTRAL SILK BOARD
CENTRAL MUGA ERI RESEARCH & TRAINING INSTITUTE
(An ISO 9001:2015 Certified Institute)
Ministry of Textiles: Govt. of India
Lahdoigarh –785 700, Jorhat, Assam (India)

Central Muga Eri Research and Training Institute, Lahdoigarh, Assam

1. Organizational set up- Nested units

Unit	**CMER&TI, Lahdoigarh, Assam**
RSRS	**1. Boko, Assam 2. Imphal, Manipur**
REC	**1. Lakhimpur, Assam** **2. Fatehpur, Uttar Pradesh** **3. Coochbehar, West Bengal**
Sub REC	**-**
Field Laboratory	**1. Titabar, Assam** **2. T.Khullen, Manipur under RSRS, Imphal**

2. Projects:

ITEM	**Target**	**Remarks**
1. CSB coded Research projects		
1.1 Projects of earlier year continued through the year 2019-20	6	**Annex 8.I**
1.2. Projects concluded during the year 2019-20	20	**Annex 8.II**
1.3.New Projects will be initiated during 2019-20	13	**Annex 8.III**
2. Extension communication programs (No.)		**Annex 8.IV**
2.1. Farmers meet cum exhibition/ Krishimela	3	
2.2. Field day / Farmers day/ Awareness programme	69	
2.3. Vichar Gosthi/Group discussion	48	
2.3. Workshop / Seminar/ Brain storming workshop	3	
2.4. Other activities		
3. Transfer of Technology		**Annex 8.V**
3.1. No. of technologies to be transferred to field	10	
3.2. No. of programs to be conducted	68	
4. No. of Training conducted (No. of persons trained to be given in parenthesis)	7 (2300)	**Annex 8.VI**
5. Digital Soil Health Card issued	1600	**Annex 8.VII**
6. Publicity / Print Literature / Films/ Videos		**Annex 8.VIII**
6.1. Periodicals	8	
6.2. Publications	21	
6.3. Extension literature	22	
6.4. Films/ Videos	10	
6.5. Social media	2	
7. Other activities		
7.1 Seri model village programme / IVLP (2019-20)	10	**Annex 8.IX**
7.2 Land use & resource conservation (rupees in lakhs)	-	**Annex 8.X**
7.3 Procurement of equipment & other accessories	-	**Annex 8.XI**

Annex 8.I

2.1.1. Projects of earlier year to be continued during 2019-20

Sl. No.	Code	Title	Start	Closure	Milestone to be crossed			
					I Qtr	II Qtr	III Qtr	IV QTR
At main institute								
CSB funded projects								
1	ARP 5889	Studies on the cross transmission of pebrine spores from lepidopteran caterpillars to Muga silkworm (*Antheraea assamensis* Helfer) and its control measures	June, 2017	May, 2020	Virulent test of spores isolated from Saturniid larvae and other important caterpillars. Preservation of isolated spores for further studies and confirmation of cross transmission of pebrine disease	Virulent test of spores isolated from Saturniid larvae and other important caterpillars. Preservation of isolated spores for further studies and confirmation of cross transmission of pebrine disease	Morphological and Molecular characterization of pebrine spores	Morphological and Molecular characterization of pebrine spores
2	PPF 5893	Impact assessment of petroleum crude oil on muga silkworm and their host plants in Assam-CSB funded	Oct., 2017	Sept., 2020	Determination of impact of crude oil activities on soil property and host plants in Muga rearing field.	To evaluate the physical changes in Muga Silkworm at contaminate sites.	Assessment of overall impact of crude oil on muga silkworm production	Assessment of overall impact of crude oil on muga silkworm production
External funded projects								
3	AIT 5876	Establishment of Institutional Biotech Hub (2nd Phase) – funded by DBT	Feb 2014	Nov., 2020	Organization of more workshop cum training programme at the institute for the benefit of the researchers and students of nearby institutions and schools	Organization of more workshop cum training programme at the institute for the benefit of the researchers and students of nearby institutions and schools	Continuation of research activities at the section	Continuation of research activities at the section
4	APS 0500 1EF	Development of technology for enhancing egg laying in Vanya Silk moths by application of host plant volatiles	Mar., 2018	Feb., 2021	To establish potent Food plants (= oviposition hosts) for Muga and Eri silk moth for egg production	To establish potent Food plants (= oviposition hosts) for Muga and Eri silk moth for egg production	To establish potent Food plants (= oviposition hosts) for Muga and Eri silk moth for egg production	To establish potent Food plants (= oviposition hosts) for Muga and Eri silk moth for egg production
At nested unit (Boko-01, Imphal-01)								

CSB funded projects								
5	ARE 4726	Bio-Ecology, economic injury level and management of insect pest infesting oak ecosystem	June, 2017	May, 2020	To determine the ETL of *Hyblaea puera* infesting *Q.serrata.* To study the efficacy of biopesticides for control of *Hyblaea puera* .	To determine the ETL of *Phalera raya* infesting *Q. serrata*. To study the integrated management practices for control of *Blepharipa sugan.* To study the efficacy of biopesticides for control of *Phalera raya.*	To study the integrated management practices for control of *Blepharipa sugan* will be continued. To study the efficacy of biopesticides for control of *Phalera raya* will be continued. Compilation of data and statistical analysis	Compilation of data and statistical analysis. Preparation of final project report
External funded projects								
6	MOE 0500 3EF	Socio-economic upliftment of farmers through adoption of improved technologies and skill development in eri culture - DST	Aug., 2018	July, 2021	Technology demonstrations On farm trails	Technology demonstrations On farm trails Extension activities	Technology demonstrations On farm trails Extension activities	Technology demonstrations On farm trails Extension activities
In collaboration with other institutes as CI								

Annex- 8. II

2.1.2. Projects continued through and to be concluded during 2019 –20

Sl. No.	Code	Title	Start	Closure	Milestone to be crossed			
					I Qtr	II Qtr	III Qtr	IV QTR
At main institute								
CSB funded projects								
1	ARP 5874	Development of Decision Support System for early warning of selected muga silkworm diseases & pests with geospatial technique. [In collaboration with NESAC]-CSB Funding.	April, 2016	Mar, 2019 Extended upto Aug, 2019	Development of DSS for early Warning of selected Muga Silk Worm Diseases. Dissemination of interactive advisory Services to farmers linking with SILKS portal.	Statistical analysis of data, Correlation and interpretation of data and final report submission	-	-
2	MOE 5875	Effect of plant protection formulations on the growth, development and productivity of Muga Silkworm, *Antheraea assamensis* Helfer (Saturniidae: Lepidoptera).	April, 2016	Mar., 2019 Extended upto Aug., 2019	Survey on the effects of pesticides used in agricultural and plantation crops on muga silkworm productivity	Statistical analysis of data, Correlation and interpretation of data and final report submission	-	-
3	APR 5877	Role of hormesis in mitigating oxidative stress and its impact on growth and yield of Muga silkworm, *Antheraea assamensis* Helfer	Sept., 2016	Aug., 2019	Understanding the levels of Oxidative stress and antioxidants in muga silkworm along with hormesis	Statistical analysis of data, Correlation and interpretation of data and final report submission	Trial and refinement of technology	Trial and refinement of technology
4	ARP 5878	Next generation sequencing studies and bioinformatics analysis of microbiome of flacherie	Sept., 2016	August, 2019	Establishing the flacherie causing bacterial pathogens up to species level	Field trails of newly developed disinfectant for efficacy analysis of data and final report	Trial and refinement of technology	Trial and refinement of technology

		infected *Antheraea assamensis* Helfer for developing effective disease control measures				submission		
5	PPA 5879	Assessment of phytochemical diversity in Som (*Persea bombycina* Kost), the primary host plant of *Antheraea assamensis* Helfer from Northeast India	Sept., 2016	Aug., 2019	Analysis of physico-chemical properties of soil, and Quantitative analysis of phytochemicals constituents	Soil nutrient management and host plant management package development. Statistical analysis of data and final report submission	Trial and refinement of technology	Trial and refinement of technology
6	PRP 5880	Characterization and efficacy of bacterial antagonists against *Alternaria ricini* infecting Castor in North-eastern India	Sept., 2016	Aug. 2019	Whole genome sequencing of the most potential isolates	*In-vivo* and field trials of the formulations. Statistical analysis of data and final report submission	Trial and refinement of technology	Trial and refinement of technology
7	PPS 5884	Soil health cards for sericulture farmers of Assam, Meghalaya, Manipur, Mizoram, Nagaland, Arunachal Pradesh and Sikkim-CSB funding.	Sept. 2016	Aug. 2019	Soil sample collection, processing, analysis, SHC preparation, distribution and digitalization Creation of awareness among the famers through social gatherings and trainings	Soil sample collection, processing, analysis, SHC preparation, distribution and digitalization Creation of awareness among the famers through social gatherings and trainings Data compilation, preparation & Submission of final report	-	-
8	APS 3612	Development of Seed Preservation Technology for Muga Silkworm	June, 2017	May, 2019	Development of Muga silkworm embryonic chart.	Identification of sensitive and suitable embryonic stage to develop an	Data compilation, preparation & Submissio	Trial and refinement of technology

		Antheraea assamensis Helfer (In collaboration with SSTL, Kodathi)				appropriate egg preservation technology.	n of final report	
9	APR 5892	Formulation of Semi-synthetic diet for rearing Muga silkworm, *Antheraea assamensis* Helfer"-CSB funded	Oct., 2017	Mar., 2020	Bioassay of muga silkworm on semi-synthetic diets.	Bioassay of muga silkworm on semi-synthetic diets.	Bioassay of muga silkworm on semi-synthetic diets. Analyses and compilatio n of data.	Recommen dation of semi-synthetic diet for muga silkworm rearing.
10	AIP 5895	Biology, population dynamics and control of *Sycanus collaris* Fabricius and *Eocanthecona furcellata* Wolff (Insecta: Heteroptera), potential predators of muga silkworm	Mar., 2018	Feb., 2020	Field survey and study of population dynamics of important predators *Eocanthecona furcellata* Wolff available in Muga ecosystem.	Study of biology, life cycle, seasonal occurrence and population dynamics of important predators of Muga silkworm, i.e. *Eocanthecona furcellata* Wolff	Developm ent of sustainable eco-friendly control measures against *E. furcellata* Wolff using IPM techniques such mechanical , aggregator lure, pheromona l trap and light traps etc.	Imparting knowledge and ideas of the bugs and extension of technology toward farmers, in respect to control measure against the predator bugs.
Externally funded projects								
11	AIT 5885	Development of microbial biocatalyst by heterologous expression of *hpaC & soxABC g*ene cluster in biosurfactant producing bacterium for effective desulfurization of dibenzo thiophene	July 2016	June 2019	Plasmid DNA extractions of biosurfactant producing bacteria for heterologus expression studies	DNA manipulation studies and Cloning of hpaC gene encode FMN:NADH HpaC reductase in *Bacillus* sp. Data compilation, preparation & Submission of final report	-	-
12	APR 5890	Biodiversity assessment of wild silkmoths & rearing potentialities of muga (*A.*	Feb., 2017	Jan., 2020	Assessment of genetic diversity of silk moths based on molecular	Assessment of genetic diversity of silk moths based on molecular	Assessmen t of genetic diversity of silk moths based on molecular	Assessmen t of genetic diversity of silk moths based on molecular

		assamensis Helfer) and eri silkworm (*S. ricini* Donovan) for sustainable development in Nagaland			markers: DNA Extraction, PCR amplification and sequencing	markers: DNA Extraction, PCR amplification and sequencing	markers: DNA Extraction, PCR amplification and sequencing	markers: DNA Extraction, PCR amplification and sequencing
13	ARP 5887	Isolation and characterization of lytic bacteriophages infecting bacterial pathogens of Muga silkworm *Antheraea assamensis* Helfer.	April, 2017	March, 2020	Sample collection and isolation of phage particles from the environmental samples	Purification of phages and analysis of phage titter	Isolation of phage DNA and characterization of phage particles through sequencing	Isolation of phage DNA and characterization of phage particles through sequencing
14	ARE 5891	Development of LED traps for controlling major insect pests and predators in muga ecosystem – Needs for organic muga silk production	July, 2017	June, 2019	Development of new modified LED traps to target major insect pests in Muga ecosystemm	Trial and refinement of technology	Trial and refinement of technology	Trial and refinement of technology
15	AIB 5894	*In-situ* conservation of muga and other wild silk moths in Natural Habitat	July, 2017	June, 2019	Signing of MoU for Meghalaya and Arunachal Pradesh state	Monitoring of *in-situ* conservation site. Utilization of wild silk moth for breeding	-	-
16	APS 05002 EF	Popularization and utilization of Foldscope for detection of pebrine disease (*Nosema assama*) in muga silkworm seed production areas	May 2018	Apr., 2019	To popularize the foldscope among school students, teachers by community participation	-	-	-
At nested units								
CSB funded projects								
17	APR 5882	Validation of Indigenous Technical Knowledge (ITK) associated in muga	Sept., 2016	Aug., 2019	Assessment of crop performance under ITK hybridized modern technologies	Preparation of final report	Trial and refinement of technology	Trial and refinement of technology

		silkworm seed production			as against the recommended modern technologies			
18	APR 5886	Improvement of Muga Cocoon yield through technology intervention and refinement of crop schedule in Terai region of W.B. -CSB funding.	Dec. 2016	Nov. 2019	Rearing of muga silkworm in refined crop schedule through technology intervention.	Analysis and final report submission	Trial and refinement of technology	Trial and refinement of technology
Externally funded projects- RSRS, Imphal								
19	ARP 3606	Development of diagnostic tools for early detection of baculovirus causing Tiger band disease in *Antheraea proylei*	Mar 2017	Feb 2020	Collection of the infected samples of egg, larvae, pupa from the field, oak tasar farmers and oak tasar grainages The total viral DNA will be extracted from these samples as per standard protocol.	Validation of the developed diagnostic tool in oak tasar grainages.	Validation of the developed diagnostic tool in oak tasar grainages will be continued. Training programme will be conducted for the stake holders, especially the seed producers and state govt. officials in the use of the developed technique.	Preparation of Final Project Report.
In collaboration with other institutes as CI								
20	PPS 3600	Soil health card preparation for mulberry growing soils in Eastern and North Eastern India	2016	2019	250 Nos. soil health card to be distributed	250 Nos. soil health card to be distributed	250 Nos. soil health card to be distributed	250 Nos. soil health card to be distributed

Annex- 8.III

2.1.3. New projects to be initiated during 2019-20

Sl. No.	Code	Title	Start	Closure	Objectives	Expected outcome
At Main Institute						
1	--	Degumming of *Antheraea assamensis* Helfer cocoon with novel enzymes (protease, lipase etc.) to enhance silk recovery	April 2019	March 2022	➢ Isolation, characterization of the extracellular microbial protease/lipase and optimization of process parameter for *in-vitro* enzyme production. ➢ Study of degumming kinetics and developing an enzyme based eco-friendly degumming process for enhancement of quality muga silk recovery.	➢ Commercial enzymatic preparations are expensive and not readily accessible to reelers, there is an urgent need for intensive scientific studies for potential application of proteolytic enzymes isolated from common cheaper sources. ➢ The untapped microbial gene pool of entire Northeast India can be a potential source of novel proteolytic enzymes. The use of proteolytic enzymes will help to strengthen muga silk industry by enhancing productivity (silk recovery), saving resources like energy and chemicals and improving quality of silk.
2	--	Molecular investigation into the lignocellulolytic system of a few Wild silkmoth in North-East India. (DBT twining) BT/PR24993/ NER/95/947/2017 Collaborative project with CSIR-NEIST	April 2019	March 2022	➢ Impact of host plant range on the microbial community in Antheraea assamensis Helfer and Samia ricini Donovan. ➢ Lignocellulose degradation by the gut microbes associated with Antheraea assamensis and Samia ricini Donovan. ➢ Molecular characterization of the lignocellulolytic biomass degrading enzyme	➢ The project aims to introduce lignocellulolytic microbial strains and enzyme components of biotechnological relevance. The project will also generate novel information regarding the silkworm genotype and host plant selection process which is an active area of research in wild silkworm biology. The generated data will provide valuable basis for understanding the microbial roles in exploration and expanding the host plant range for Antheraea assamensis Helfer and Samia ricini Donovan for better output in terms silk production and quality.
3	--	Standardization of chawki rearing practices for Eri silkworm, *Samia ricini* (Donovan)	April 2019	March 2022	➢ Establishment of suitable castor garden for Eri silkworm chawki rearing. ➢ Design and fabrication of rearing equipment for Eri silkworm chawki rearing. ➢ Evaluation of different disinfection methods for Eri silkworm chawki	➢ Eri chawki rearing silkworm practices leads to increased raw silk production in India. ➢ Commercialization of Eri silkworm chawki rearing centers (ECRC) to provide more income for farmers and saving time for late age rearing. ➢ Well designed rearing appliances for easy rearing of Eri chawki worms. ➢ Ideal methods for temperature and humidity maintenance in Eri silkworm chawki rearing

					rearing house. ➢ Decelopment of Eri chawki rearing methods with different ecoraces and ideal environment for chawki rearing.	house by adopting advanced techniques. ➢ Suitable variety of castor and simple feeding methods for Eri silkworm chawki rearing. ➢ Simple methods for brushing, bed spacing, cleaning, lime dusting, bed disinfection application to create good rearing performance with uniformity and free from pathogens. ➢ Modern castor garden and chawki rearing house at CMER&TI, for demonstration.
4	--	Bionutritional Science of Eri and Muga Silkworm Pupae to Mine New Ways for utilization	April 2019	March 2022	➢ Characterization and value addition of Eri and Muga silkworm pupal bioprotein and lipids. ➢ Determination of shelf life and application of silkworm pupal bioprotein as plant and silkworm growth stimulator. ➢ Standardization of protocol for silkworm pupal residue biocomposting and value addition	➢ The entrepreneurs can make use of silkworm pupal products very effectively for income generation. ➢ The developed technology will help the farmers in production of enriched pupal products. ➢ Enriched pupal products contain high nutritional value and can be used as plant and animal growth promoter. ➢ Commercialization of different pupal products in local markets of traditional pupa consuming areas. ➢ Value addition of pupal protein and lipids constituents in medicinal field.
5	--	Non-woven fabrics from eri silk and silk waste	April 2019	March 2022	➢ To develop a non-woven fabric from Eri silk using suitable technique. ➢ To test and characterize their physical and structural properties. ➢ To explore their possibilities of value addition and diversified product application	➢ Quick and short process line for conversion of cocoons/ silk waste to fabric (from filament stage to fabric stage without spinning) ➢ Increased value addition and product diversification staging higher income for families involved in Ericulture ➢ Huge scope for replacing conventional synthetic non-wovens with natural and eco-friendly Eri silk materials ➢ Effective mass utilization of silk and silk waste to useful products
6	--	Assessment of the climate change impact on Muga silkworm and its host plants	April 2019	March 2022	➢ Collection of historical and current meteorological, satellite data related to muga silkworm and its host plant cultivation ➢ Study of adaptability potential of muga and its host plants in different climatic	➢ Degree of the climate change effect on Muga host plant will be assessed ➢ Better leaf quality production under changing environment ➢ Behaviour response of existing breed of muga silkworm under stress condition support to develop the stress tolerant breed ➢ Security of the Muga farmer livelihood in the changing

					conditions ➢ Study of behavior of existing breeds of muga silkworms in different climatic conditions. ➢ Assessment of the leaf quality for muga silkworm rearing in identified adaptation cultivation practice	environment
7	--	Breeding of Mugasilkworms for improved silk quality and disease tolerance	April 2019	March 2022	➢ Study of phenotypic characteristics of existing CMR-1 and CMR-2 breeds ➢ Selection of betterparents by field collection of Mugasilkmoth samples ➢ Classical breeding studies to select better lines for Mugasilkmoths ➢ Mass production for limited trials	➢ Improved breeds of Mugasilkmoths. ➢ Parental stock for breeding, which may be used by other insect breeders for improving the silk quality and disease tolerance. ➢ Information on the current status of cocoon quality of field collected wild silkmoths. ➢ Information on lines having disease tolerance. ➢ Maintenance of field collected germplasm in the institute.
8	--	Pre-breeding for improvement of castor (*Ricinus communis* L.) with emphasis on development of productive perennial cultivar	April 2019	March 2022	➢ Genetic enhancement of castor germplasm with collections from field surveys and Indian Institute of Oilseed Research (IIOR), Hyderabad. ➢ Selection of pre-bred intermediate castor with perennial characteristics	➢ It is expected to enrich the gene pool with varied germplasm collections made from the field and IIOR, Hyderabad for its utilization in the present pre-breeding programme and future castor improvement programmes. ➢ Selection of pre-bred intermediate material with perennial character will be utilized in a breeding programme for development of a productive perennial castor cultivar with wider adaptability, which in turn will enhance the availability of leaf in the field for sustainable Eri culture
9	--	Distribution, seed technology, germination, ecology and breaking seed dormancy of *Litsea cubeba* Pers and *L. salicifolia*	April 2019	March 2022	➢ Distribution pattern and characterization of *L. cubeba* and *L. salicifolia* from different locations of northeast India ➢ Uderstanding the seed biology and germination ecology of *L. cubeba* and *L. salicifolia*	➢ To know the distribution pattern of the species throughout northeast India and findout the most potential accessions for silkowrm rearing and seed production. ➢ Biochemical and molecular characterization of the accession will help for evaluating potential accessions. ➢ Understanding the seed biology and ecology,to findout seed variability, pollination mechanism, seed development etc. ➢ Helps in develop a nursery for

						raising *L. cubeba* and *L. salicifolia* seedlings and supply accordingly for plantation among the farmers
At nested units (RSRS, Imphal-04; RSRS, Boko-01)						
10	--	Popularization of indoor rearing technique of oak tasar culture	2019	2022	To enhance income of the farmers through indoor rearing of oak tasar culture utilizing naturally available food plants. To promote and assess the technological requirements for oak tasar culture in specific/gap areas.	Livelihood security of the farmers through skill up-gradation and developed technologies for increasing quality and quantity production of oak tasar culture. Farmers will be empowered through capacity building in oak tasar silk culture with infrastructural support. Training and awareness of indoor rearing technology of oak tasar culture will boost in production of oak tasar silk.
11	--	Enhancement of Muga Cocoon Production In Manipur Through Technology Intervention	2019	2023	Sustainable development of muga culture through technology dissemination, exploitation of natural resources of Muga food plants and providing income generating opportunities to peoples. Employment creation through muga culture	Muga culture has scope to develop rural economy through sustainable income as well as employment generation. After providing necessary training, demonstration the targeted farmers will be the model lead muga farmers who will help in replication of more muga farmers. They will be engaged in practical field. At the rate of 1: 60 of 400 dfls/ farmer, about 24,000 cocoons will be harvested in one seed crop season. In the year, two seed crops can be reared by one farmer in his farm (1 acre). Therefore, he will be able to collect about 48,000 seed cocoon in a year. These 48,000 cocoons will produce16,000 dfls at the ratio of 3:1. At the rate of Rs 8/- per dfl and the farmer will be able to get Rs. 1,28 ,000/- extra income for adoption of sericulture in two seed crops. In case of commercial farmer by adopting two commercial crop @ 400 dfl/ commercial crop, he will be able to get 56,000 cocoons in a year by adopting two crops. By converting the cocoon in to yarn, he will get 12 kg yarn. The present rate of muga yarn is about Rs. 12,000/- per kg. Therefore a farmer will be able to income Rs. 1, 44, 000/- in a year by adopting two commercial crops/year with one acre plantation. Product diversification is also another vital area for the same beneficiary. Therefore, there is scope for employment generation

						among the youth for additional income from muga culture and also development long term entrepreneurship.
12	--	*In-situ* conservation of, *oak tasar silkworm, antheraea frithi* (lepidoptera: saturniidae) and other wild silk moths	2019	2022	Development of *in-situ* conservation site for Oak Tasar silkworm and other wild silk moths species Utilization of Oak Tasar silkworm germplasm for breeding and seed production.	Conservation in natural condition will help in preventing the extinction of the Oak tasar species. The oak tasar culture is an important co-discipline of applied forest biology that needs special attention to promote conservation and sustainable utilization of natural resources, as they contribute to rural tribal socio-economic and cultural heritage. An illustrated database for host plants, vertebrates, and invertebrates with scientific details and above mentioned criteria will be documented and published (at website, reports and books). The website database will be linked with the website of Manipur State Biodiversity Board for awareness among researchers & farmers. The collected Germplasm of oak tasar will be utilized for development of new breeds which will be superior in terms of higher fecundity and shell ratio.
13	--	Isolation of thermo-tolerant line(s) of oak tasar silkworm *Antheraea proylei J.*	2019	2022	To isolate thermo-tolerant line of oak tasar silkworm, *Antheraea proylei* To unravel the underlying molecular mechanism of thermal stress tolerance in oak tasar silkworm	A Thermo-tolerant line of Oak Tasar silkworm will be isolated through the project. Necessary packages will be worked out during the course of study for the grainage and rearing in order to exploit at their fullest potential. The isolated lines are of immense value not only for utilization in hot and dry conditions, but also they will be utilized to unravel the underlying molecular mechanism of thermal stress tolerance in oak tasar silkworm, also the adaptation strategy of them.
In collaboration with other institutes as CI						
		Nil				

Annex- 8. IV

2.2. Extension Communication Programmes to be conducted during 2019-20

Programmes	Annual Target												
	No. of events												Persons to be sensitized
	A	M	J	Ju	A	S	O	N	D	J	F	M	
Farmers meet / Krishi Mela= 3 nos.													
CMER&TI										1			400
RSRS, Boko										1			200
RSRS, Imphal											1		200
												Total	**800**
Field days (@ Rs.0.10/event) = 18 nos.													
CMER&TI: 7 nos.		1	1	-	-	-	1	1	1	1	1	-	490
RSRS, Boko: 3 nos.									1	1	1		210
RSRS, Imphal: 3 nos.									1	1	1		210
REC, Lakhimpur: 2 nos.										1	1	-	140
REC, Fatehpur: 2 nos.										1	1	-	140
REC, Coochbehar: 1 no.	-	-	-								1	-	70
												Total	**1260**
Farmers day (@ Rs.0.10/event) =18 nos.													
CMER&TI: 7 nos.	-	-	-	-	-	-	1	1	1	2	2		490
RSRS, Boko: 3 nos.									1	1	1		210
RSRS, Imphal: 3 nos.									1	1	1		210
REC, Lakhimpur: 2 nos.									1	1			140
REC, Fatehpur: 2 nos.									1	1			140
REC, Coochbehar: 1 no.										1			70
												Total	**1260**
Awareness programmes (@ Rs.0.10/event) =33 nos.													
CMER&TI: 15 nos.			1	1	1	2	2	2	2	2	2		1050
RSRS, Boko: 6 nos.									2	2	1	1	900
RSRS, Imphal: 6 nos.									2	2	1	1	900
REC, Lakhimpur: 2 nos.											1	1	140
REC, Fatehpur: 2 nos.											1	1	140
REC, Coochbehar: 2 nos.											1	1	140
												Total	**2310**
Vichar Gosthi/ Group discussion (@ Rs.0.01/event)=39													
CMER&TI: 15 nos.			1	1	1	2	2	2	2	2	2		300
RSRS, Boko: 6 nos.								2	2	2			120
RSRS, Imphal: 6 nos.									2	2	2		120
REC, Lakhimpur: 4 nos.									1	1	1	1	80
REC, Fatehpur: 4 nos.									1	1	1	1	60
REC, Coochbehar: 4 nos.									1	1	1	1	60
												Total	**740**
Technology demonstrations (@ Rs.3000/event)=14													
CMER&TI: 7 nos.			1	1	1	1	1	1	1				175
RSRS, Boko: 2 nos.								1	1				50
RSRS, Imphal: 2 nos.									1	1			50
REC, Lakhimpur: nos.													
REC, Fatehpur: nos.													
REC, Coochbehar:3 nos.										1	1	1	150
												Total	**325**

***Provision of 1-5 activities in a year may be kept under this head to meet the special requests for ECP activities**

Programmes	Annual Target												
	No. of events												Persons to be sensitized
	A	M	J	Ju	A	S	O	N	D	J	F	M	
Workshop / Seminar (@ Rs.1.00/event)=3													
CMER&TI:											1		100
RSRS, Boko:											1		100
RSRS, Imphal:											1		100
Other activities*													
CMER&TI:													
RSRS, Boko:													
RSRS, Imphal:													
												Total	**6995**

***Provision of 1-5 activities in a year may be kept under this head to meet the special requests for ECP activities**

Annex-8. V

2. 3. Transfer of Technology to be conducted during 2019-20

Sl. No	No. of technologies to be taken to field	TOT Activity (Name)	Farmers covered (No.)
At CMER&TI, Lahdoigarh			
1.	10	INM for castor host plant	300
2.	10	Beneficial gut microflora	300
3.	10	Forewarning and forecasting	300
4.	10	Popularization of high yielding eri ecoraces	300
5.	10	Integrated management of Uzifly	300
6.	10	Integrated management of stem borer	300
7.	05	Popularization of Borpat (*Alianthus sps*.) Eri host plant	150
8.	01	Raising of Borpat Nursery	20
At RSRS, Imphal			
9.	01	Popularization of Package of Practices of Chawki Rearing	20
10.	01	Popularization of Package of Practices of Late Age Rearing	10
11.	01	Popularization of Mounting and Harvesting technology	10
Total	**69**		**2020**

ACTION PLAN FOR EVALUATION OF NEW MUGA BREEDS CMR-1 & CMR-2 AT MSSO, DOS AND FARMERS' FIELDS DURING 2019-20

Two new breeds of Muga silkworm have been developed by CMER&TI after a long process following different conventional breeding techniques. The breeds have been designated as CMR – 1 and CMR – 2. CMR – 1 has the potential of laying over 166 nos. of eggs (fecundity) compared to 125 numbers in general stocks, higher hatching percent (72 % compared to 68 % in control) and higher survivability (52 % ERR compared to 43 % in control). Similarly, CMR – 2 has a fecundity of 164 nos., 70 % hatching and 52 % survivability. The breeds are presently being maintained in the institute for further multiplication and evaluation at Regional Research Station, Research Extension Centres & MSSO levels and at DoS and private farms.

Project code & title	**Duration**	**Objective**	**Intervention / Outcome expected**	**Physical target for 2019-20**				**Financial target for 2019-20**				**Total budget provision for 2019-20**
				1 qtr.	**2 qtr.**	**3 qtr.**	**4 qtr.**	**1 qt**	**2 qtr.**	**3 qtr.**	**4 qtr.**	
ToT Programme	1 year	Popularization of new Muga Breeds	New breed popularized for acceptance by all concerned which will lead to higher production of muga raw silk	Rearing of muga dfls of CMR-1 & CMR-2 at Govt. farms and private farmers' field of Jorhat, Golaghat, Dibrugarh, Tinsukia, Goalpara, Lakhimpur, Dhemaji, Kamrup and Sivasagar districts for large scale rearing of the breeds for evaluation	Rearing of muga dfls of CMR-1 & CMR-2 at MSSO, Govt. farms and private farmers' field of Jorhat, Golaghat, Dibrugarh, Tinsukia, Goalpara, Lakhimpur, Dhemaji, Kamrup and Sivasagar districts; selected farms under DoS and private farms at Manipur, Arunachal Pradesh and Nagaland for large scale rearing of the breeds for evaluation.	Rearing of muga dfls of CMR-1 & CMR-2 at Govt. farms and private farmers' field of Jorhat, Golaghat, Dibrugarh, Tinsukia, Goalpara, Lakhimpur, Dhemaji, Kamrup and Sivasagar districts; selected farms under DoS and private farms at Manipur, Arunachal Pradesh and Nagaland for large scale rearing of the breeds for evaluation.	Rearing of muga dfls of CMR-1 & CMR-2 at MSSO, Govt. farms and private farmers' field of Jorhat, Golaghat, Dibrugarh, Tinsukia, Goalpara, Lakhimpur, Dhemaji, Kamrup and Sivasagar districts of Assam; Sivasagar districts; selected farms under DoS and private farms at Manipur, Arunachal Pradesh and Nagaland for large scale rearing of the breeds for evaluation.	1.8	2.2	3.0	3.0	Fellowship = Nil Wages = nil Transport & Travels=1.00 Cost of materials and supply: 7.00 Contingency =2.00 Other = Nil Total =10 lakhs

Note:

1. Number of DoS farms to be selected for rearing in two seasons during April-May and October November (commercial crops): Minimum 10.
2. Number of MSSO farms to be selected for rearing in two seasons during seed and pre seed crops: 02.
3. Number of private farms to be selected for rearing in two seasons during April-May and October November (commercial crops): Minimum 50.
4. Number of basic dfls to be reared under MSSO farms in pre and seed crops: 50 dfls per farm per season
5. Number of dfls to be reared under DoS/private farms in pre and seed crops: Minimum 200 dfls per farm per season.
6. In each season of commercial crops, at least 200 muga cocoons from each site of rearing will be analyzed for assessing the fibre quality parameters.

Budget requirement:

Sl. No.	**Particulars / items**	**Rate (Approx.)**	**Quantity (nos.)**	**Amount (Rs. in lakhs)**	**Justification**
1.	Rearing nets	5000/-	100	5.00	For rearing of the breeds at farmers' levels which is very important for protection of worms. The size of the rearing net is 40 mx30 mx16 m with 2 mm mesh size is ideal. Cost of one net of the size is around Rs. 5,000.00.
2.	Chemicals, plastic and glass wares	Lump sum	Lump sum	2.00	The chemicals are required for disinfection of grainage building, sanitation of rearing fields, prophylactic measures for prevention of incidence of diseases and pests of Muga silkworm and its host plants.
3.	Travel	-do-	-do-	1.00	There will be need of extensive travel of scientists to different rearing sites in the areas selected for rearing to collect data.
4.	Contingency	-do-	-do-	2.00	
	TOTAL			**10 lakhs**	

Annex –8. VI

2. 4. Training / Human Resource Development to be carried during 2019-20

Sl. No.	**Training / Course**	**Target** Phy. No (Financial in Lakh)
Trainings Under CBT:		
1	Training under STEP	50 (0.70)
2	Farmers Skill Training	500 (21.40)
3	Exposure visit for technology awareness	200 (8.0)
4	Technology Orientation Programme	200 (7.60)
5	Training under Post Cocoon Sector	50 (2.25)
6	Sericulture Resource Centre	900 (2.25)
TOTAL		**1900 (42.20)**
Trainings through other funds:		
7	Non-CBT/Non-CSB	400
G. TOTAL		**2300**

Annex –8.VII

2. 5. Digital Soil Health Cards to be issued during 2019-20

Sl. No.	Name of state	Target
At CMER&TI, Lahdoigarh – Muga farmer		
1	Assam	95
2	Arunachal Pradesh	30
3.	Meghalaya	65
4.	Manipur	30
5.	Mizoram	30
6.	Nagaland	40
7.	Sikkim	10
At CMER&TI, Lahdoigarh – Eri farmer		
1.	Assam	120
2.	Arunachal Pradesh	30
3.	Meghalaya	40
4.	Manipur	40
5.	Mizoram	30
6.	Nagaland	40
At RSRS, Imphal – Mulberry farmer		
1.	Meghalaya	250
2.	Manipur	250
3.	Mizoram	250
4.	Nagaland	250
Total		**1600**

Annex - 8.VIII

2. 6. Information, education and communication

Sl. No.	Item	Target (No.)
1	**Periodicals**	
	Annual Report	1
	CMERTI Sericulture News	4
	Hindi News Letter	2
	E-News Letter	1
2	**Publications**	
	Journal papers	10
	Conference papers	10
	Books	1
3	**Extension literature**	
	Booklets / Leaf lets	10
	Posters	10
	Training literature	2
4	**Films/ Videos** (including extension programmes)	10
5	**Social media**	
	Website	1
	Link to CSB website	1
	Total	**63**

Annex - 8. IX

2.7. Other activities

2. 7. 1. Seri Model Village Programme /IVLP (2019-20)

Physical target : 11 SMVs (Muga pre cocoon 04, Eri pre cocoon 04, Eri PCT 01 and new Oak Tasar 01)

Proposed districts to be covered in Assam and Manipur

Sl. No.	Name of the district	Number of Villages to be covered				
		Muga	Eri	PCT (Muga)	PCT (Eri)	Oak Tasar
1.	Sivasagar	1	1			
2.	Jorhat		1	1		
3.	Golaghat	1	1			
4.	Dibrugarh	1				
5.	Tinsukia		1			
6.	Goalpara	1				
7.	Lakhimpur				1	
8.	Imphal*					1
Total		**4**	**4**	**1**	**1**	**1**
Total (Rs. In lakhs)		**42.96**	**24.72**	**10.74**	**1.22**	**0.86**
Grand Total (Rs. In lakhs)		**80.50 lakhs**				

***** New SMV under RSRS, Imphal

Number of farmers: 10222 nos (@ 100 farmers for each muga/eri/oak tasar pre cocoon and 62+60 farmers in post cocoon SMV (Eri + Muga)

Particulars/ Activities

Muga Pre cocoon

Sl. No	Particulars/ Activities	Budget (Rs. in lakhs)
1.	Supply of seed cocoons to pvt. graineurs	**6.00**
2.	Supply of disinfectants (Bleaching powder, lime), vermin compost, *etc*. during demonstration	**1.00**
3.	Supply of seedlings (Som / soalu) for plantation during demonstration	**2.00**
4.	Mobility of Scientists/ technical staff	**1.50**
5.	Mobile bills of Nodal officers (5)	**0.24**
	Total	**10.74**

Eri Pre cocoon

Sl. No.	Particulars/ Activities	Budget (Rs. In lakhs)
1.	Supply of seed cocoons to pvt. graineurs	**1.44**
2.	Supply of disinfectants (Bleaching powder, lime), vermin compost, *etc*. during demonstration	**1.00**
3.	Supply of seedlings (Kesseru/Borpat) for plantation during demonstration	**2.00**
4.	Mobility of Scientists/ technical staff	**1.50**
5.	Mobile bills of Nodal officers (5)	**0.24**
	Total	**6.18**

Oak Tasar Pre cocoon

Sl. No.	Particulars/ Activities	Budget (Rs. In lakhs)
1.	Supply of seed cocoons to pvt. graineurs	**6.00**
2.	Supply of disinfectants (Bleaching powder, lime), vermin compost, *etc*. during demonstration	**1.00**
3.	Supply of seedlings of Oak Tasar host plants for plantation during demonstration	**2.00**
4.	Mobility of Scientists/ technical staff	**1.50**
5.	Mobile bills of Nodal officers (5)	**0.24**
	Total	**10.74**

Eri Post cocoon

Sl. No.	Particulars/ Activities	Budget (Rs. In lakhs)
1.	Organization of 4 days training for spinners	**0.50**
2.	Mobility of Scientists/ technical staff	**0.30**
3.	Mobile bills of Nodal officers	**0.06**
	Total	**0.86**

Post cocoon (Muga)

Sl. No.	Particulars/ Activities	Budget (Rs. In lakhs)
1.	Organization of 4 days training for reelers	**0.50**
2.	Organization of awareness programme (2 nos.)	**0.20**
3.	Supply of reeling machine (Bani) (6 nos)	**0.90**
4.	Mobility of Scientists/ technical staff	**0.40**
5.	Mobile bills of Nodal officers	**0.06**
6.	Contingencies	**0.16**
	Total	**1.22**

Annex. – 8. X

2. 7. 2. Land use and resource conservation (Rupees in Lakhs)

#	Activities	Physical Target for 2018-19					Financial for 2018-19				
		Qtr-1	Qtr-2	Qtr 3	Qtr-4	Total	Qtr-1	Qtr-2	Qtr 3	Qtr-4	Total
A	**Raising of seedlings/ sapling (nos)**										
I	**Som / Soalu seedling (Raising cost cost Rs.5/- per seedling in polybag)**										
1	CMER&TI, Lahdoigarh	50000	0	0	0	50000	2.50	0.00	0.00	0.00	2.50
2	RMRS, Boko	50000	50000	0	0	100000	2.50	2.50	0.00	0.00	5.00
3	REC, Lakhimpur	5000	0	0	0	5000	0.25	0	0	0	0.25
4	REC, Coochbehar	5000	0	0	0	5000	0.25	0	0	0	0.25
	Sub- total (I)	**110000**	**50000**	**0**	**0**	**160000**	**5.50**	**2.50**	**0.00**	**0.00**	**8.00**
I	**Raising of Kesseru seedlings (Raising cost per seedling Rs.3/-(without poly bag); Rs.5/- (in polybag)**										
1	CMER&TI, Lahdoigarh	10000	0	0	0	10000	0.50	0	0	0	0.50
	Sub- total (II)	10000	0	0	0	10000	0.50	0	0	0	0.50
	Total (A)										
B	**Supply of seedling / sapling**										
I	**Som / Soalu seedling @ Rs.5/- per seedling**										
1	CMER&TI, Lahdoigarh	5000	5000	0	0	**10000**	0	0	0	0	**0.00**
2	RMRS, Boko	10000	10000	0	0	**20000**	0	0	0	0	**0.00**
3	REC, Lakhimpur	2500	2500	0	0	**5000**	0	0	0	0	**0.00**
4	REC, Coochbehar	2500	2500	0	0	**5000**	0	0	0	0	**0.00**
	Sub- total	**20000**	**20000**	**0**	**0**	**40000**	**0**	**0**	**0**	**0**	**0**
I	**Kesseru seedling per seedling @ Rs. 3/-(without poly bag); Rs.5/- (in poly bag)**										
1	CMER&TI, Lahdoigarh	5000	3000	0	0	**8000**	0	0	0	0	**0.00**
	Sub- total	5000	3000	0	0	**8000**	0	0	0	0	**0.00**
C	**Dfls brushing**										
I	**Muga Commercial crop (Cost @ Rs. 10/- per dfl)**										
1	CMER&TI, Lahdoigarh	1500	0	1500	0	**3000**	0.150	0	0.150	0	**0.300**
2	RMRS, Boko	1250	0	1250	0	**2500**	0.125	0	0.125	0	**0.250**
3	REC, Lakhimpur	250	0	250	0	**500**	0.025	0	0.025	0	**0.050**
4	REC, Coochbehar	250	0	250	0	**500**	0.025	0	0.025	0	**0.050**
	Sub-total (I)	**3250**	**0**	**3250**	**0**	**6500**	**0.325**	**0.000**	**0.325**	**0.000**	**0.650**

#	Activities	Physical Target for 2018-19					Financial for 2018-19				
		Qtr-1	Qtr-2	Qtr 3	Qtr-4	Total	Qtr-1	Qtr-2	Qtr 3	Qtr-4	Total
II	**Muga Seed crop (Cost @ Rs. 10/- per dfl)**										
1	CMER&TI, Lahdoigarh	250	600	250	600	**1700**	0.025	0.060	0.025	0.060	**0.170**
2	RMRS, Boko	150	200	200	150	**700**	0.015	0.020	0.020	0.015	**0.070**
4	REC, Lakhimpur	0	200	0	200	**400**	0.000	0.020	0.000	0.020	**0.040**
5	REC, Coochbehar	100	200	200	100	**600**	0.010	0.020	0.020	0.010	**0.060**
	Sub-total (II)	**500**	**1200**	**650**	**1050**	**3400**	**0.050**	**0.120**	**0.065**	**0.105**	**0.340**
III	**Eri (Cost @ Rs. 5/- per dfl)**										
1	CMER&TI, Lahdoigarh	75	75	75	75	**300**	0.00375	0.00375	0.00375	0.00375	**0.01500**
5	REC Fatehpur	0	0	100	100	**200**	0.00000	0.00000	0.00500	0.00500	**0.01000**
	Sub-total (III)	**75**	**75**	**175**	**175**	**500**	**0.00375**	**0.00375**	**0.00875**	**0.00875**	**0.02500**
D	**Muga Commercial cocoon production (@ 60 cocoons/dfl)**										
1	CMER&TI, Lahdoigarh	90000	0	90000	0	**180000**	0	0	0	0	0
2	RMRS, Boko	75000	0	75000	0	**150000**	0	0	0	0	0
3	REC, Lakhimpur	15000	0	15000	0	**30000**	0	0	0	0	0
4	REC, Coochbehar	30000	0	30000	0	**60000**	0	0	0	0	0
	Sub-total (D)	**210000**	**0**	**210000**	**0**	**420000**					
E	**Muga Seed cocoon production @ 40 cocoons/ dfl**										
1	CMER&TI, Lahdoigarh	10000	24000	10000	24000	**68000**	0	0	0	0	
2	RMRS, Boko	6000	8000	8000	6000	**28000**	0	0	0	0	
4	REC, Lakhimpur	0	8000	0	8000	**16000**	0	0	0	0	
5	REC, Coochbehar	4000	8000	8000	4000	**24000**	0	0	0	0	
	Sub-total (E)	**20000**	**48000**	**26000**	**42000**	**136000**					
F	**Eri cocoon production @ 10.0 kg shell /100dfl**										
1	CMER&TI, Lahdoigarh	7.5	7.5	7.5	7.5	**30.0**	0	0	0	0	
5	REC Fatehpur	0	0	10	10	7.5	0	0	0	0	
	Sub-total (F)	**7.5**	**7.5**	**17.5**	**17.5**	**37.5**					
G	**Muga dfls production from 60% of cocoons generated from seed crop @ Cocoon : dfl is 3 :1 (g)**										
1	CMER&TI, Lahdoigarh	2000	4800	2000	4800	**13600**	0	0	0	0	
2	RMRS, Boko	1000	2500	2500	1000	**7000**	0	0	0	0	
4	REC, Lakhimpur	0	1200	0	1200	**2400**	0	0	0	0	
5	REC, Coochbehar	500	1500	1500	500	**4000**	0	0	0	0	
	Sub total (G)	**3500**	**10000**	**6000**	**7500**	**27000**					

#	Activities	Physical Target for 2018-19					Financial for 2018-19				
		Qtr-1	Qtr-2	Qtr 3	Qtr-4	Total	Qtr-1	Qtr-2	Qtr 3	Qtr-4	Total
H	**Eri dfl production from own source of seed cocoons @ Cocoon : dfl is 3 :1 (Nos)**										
1	CMER&TI, Lahdoigarh	0	400	1000	500	**1900**	0	0	0	0	
	Sub-total (H)	0	400	1000	500	**1900**					
I	**Muga dfls supply @ Rs.10/- per dfl (g)**										
1	CMER&TI, Lahdoigarh	2000	4800	2000	4800	**13600**	0	0	0	0	
2	RMRS, Boko	1000	2500	2500	1000	**7000**	0	0	0	0	
4	REC, Lakhimpur	0	1200	0	1200	**2400**	0	0	0	0	
5	REC, Coochbehar	500	1500	1500	500	**4000**	0	0	0	0	
	Sub-total (I)	**3500**	**10000**	**6000**	**7500**	**27000**					
J	**Eri dfls supply**										
1	CMER&TI, Lahdoigarh	400	400	400	400	**1600**	0	0	0	0	
	Sub-total (J)	400	400	400	400	**1600**					
	Grand Total										

Annex. – 8. XI

2. 7. 3. Procurement of Equipment and other accessories

Equipment/other requirement	Quantity	Justification	Approx. price (Rs. in lakhs)
CMER&TI, Lahdoigarh			
Host Plant Improvement			
Computer with laser printer	1	To do the daily office and project works	1.00
		Sub-Total	**1.00**
Silkworm Pathology			
Denaturing gradient gel electrophoresis (DGGE) machine	1	This instrument is required for analysis of DNA fingerprinting and mutation analysis in Microbial community and also in insects. This instrument is useful for both the projects ARP 5878, AIT 5885. This equipment is instrumental for SNP (single nucleotide polymorphism) analysis.	5.00
Ultrasonicater	1	This instrument is required for DNA/RNA extractions. This is useful for biochemical extractions.	1.00
Liquid nitrogen cylinders / container	2	Liquid nitrogen cylinder is required for storing liquid nitrogen which is essential component in DNA/RNA extractions. This is required for 4 different research projects running at pathology department	1.20
RT-PCR (qPCR)	1	Expression analysis of different treatment in the different projects running at the section	20.00
Digital autoclave	1	One digital autoclave (approx. 20 ltr) capacity is required for easy and quick sterilization	1.50
		Sub-Total	**28.70**
Biotechnology Section			
Sonicator	1	For tissue homogenization	1.00
Upgrading of the software of HPLC system	1	Upgrading of the existing software of HPLC system	5.00
Installation of wall wooden rack in Biotechnology laboratory	1	Due to lack of space for incoming consumables and instruments, low cost wooden racks will be mounted in the Biotechnology/Biotech Hub laboratory	1.00
		Sub-Total	**7.00**
Extension Section			
Pocket/Mobile projector	3	For conducting quick presentation or showing relevant photograph during field visit or informal discussion with the rearers	0.90
Portable public adress system	1	For conducting farmers meeting or group discussion especially in difficult areas where often electricity is not available/frequently disturbed	0.20
DSLR Camera	1	For extension photography and documentation of various practices followed by farmers. For recoding success stories with A-V inputs thus ensure better credibility of collected material	0.75
Sliding glass display board	4	For arranging exhibition during krishimelas or farmers meet. Awareness material will be displayed in division also round the year for enlightment of visiting farmers	0.12

Equipment/other requirement	Quantity	Justification	Approx. price (Rs. in lakhs)
Colour xerox machine	1	For constructing publicity material to be used in technology transfer programme as well as exhibition inside division.	2.00
		Sub-Total	**3.97**
PMC Section			
Godrej Almirah	2	For keeping books, leaflet and other important things in safe custody	1.00
Computer and accessories (scanner & Printer	1	For data entry, calculation and documentation of different activities	0.50
UPS System at PMC Section – 5 KVA	1	For PMC Section to run the computer	2.00
		Sub-Total	**3.50**
Training Section			
Inverter	Minimum 1.1 Kva, 12V, IGBT technology, square wave or shine wave	Required for the classroom for uninterrupted power supply to play audio-video system, light, fan and other electronic appliances. Since this institution is established in a remote locality, so frequently power cut takes place especially in summer season.	2.00
		Sub-Total	**2.00**
Farm Management			
Portable sprinkler based irrigation system for Germplasm conservation system (GCC), Chenijan under CMER&TI	1 set	Germplasm conservation system at GCC, chenijan. CMER&TI is completely rainfed. Non-availability of irrigation water system during different cropping season creates hindrance to raising of host plants for rearing purposes and meet annual target. Moreover it creates problem for maintenance and farm improvement/development	2.50
		Sub-Total	**2.50**
CMER&TI Nested units			
RSRS, Boko			
Tractor	1	For digging and land development	10.00
Power Tiller	1	For digging of around 40 acre of plantation One power Tiller is required	2.00
50 KVA Generator Set	1	There is very irregular & uncertain electricity supply at RMRS, Boko. Hence, one 50 KVA Generator set is required to supply power to Office, grainage, laboratory, street light and quarters.	25.00
Petrol operated grass cutter	2	For cutting of grass in plantation and internal road	1.20
Petrol operated punning saw	2	For pruning of plantation	0.60
BOD Incubator	1	For incubating / preserving Muga Dfls	1.00
Electronic Balance	2	For laboratory used	0.40
Compound Microscope	2	For Mother Moth Examination	0.30
Centrifuge	1	For Mother Moth Examination	0.30

Equipment/other requirement	Quantity	Justification	Approx. price (Rs. in lakhs)
Furniture	-	For setting arrangement and keeping records	3.00
Desk top Computer set	2	For Technical section	1.20
Grainage		For grainage / Rearing purpose	1.00
		Sub-Total	**47.10**
RSRS, Imphal			
Mobile Van	1	For transportion of seed cocoons	7.00
		Sub-Total	**7.00**
REC, Lakhimpur			
Foot Compression Sprayer	1	Spraying insecticides / fungicides / disinfection of farm, etc	0.15
File Cabinet (4 chambers)	1	Keeping files / registers of the REC	0.25
Ceiling Fan / Stand Fan	2	Official	0.10
		Sub-Total	**0.50**
Filed Laboratory Titabar			
Inverter 1.5kva	1	Since the institution is situated in the remote location, so frequent power cut off take place in summer.	0.15
Full secretariat Table (Goodrej)	1	Old wooden furniture is not repairable	0.2
Half secretariat Table (Goodrej)	1	Old wooden furniture is not repairable	0.15
Steel Chairs with arms	4	For the visitors use	0.2
Executive chair	1	To be used by in charge or officer	0.15
		Sub-Total	**0.85**
Constructions			
Construction of Pathology 1st floor building			50.00
		Sub-Total	**50.00**
		Grand Total	**154.12**

Annexure 8.XII

Target at a glance during 2019-20

Name of institute	Projects			Extension programs				Technologies to be transferred		Training to be conducted		DSHC to be issued	Publicity material to be published/ fils-video to be made (No.)
	Projects of earlier year continued through	Projects concluded during the year	New Projects to be initiated	Farmers meet / Krishi Mela	Field day/ Farmers day/ Aware-ness program-mme	Vichar Gosthi/ Group Discussion	Seminar/ Workshops	Techno-logies transferred (No.)	Farmers covered (No.)	Programs Conducted (No.)	No. Trained		
CMER&TI Ladoigarh	**6**	**20**	**13**	**3**	**69**	**53**	**3**	**11**	**2020**	**7**	**2300**	**1600**	**63**

Annexure 1 X

Progress format

Name of the Institute: Central Muga Eri Research and Training Institute (CMER&TI), Lahdoigarh, Jorhat Tentative Action Plan 2019-20- Physical & Financial:

Sl. No.	Activity		Details					
			Physical Target 2018-19)	Achievement 2018-19	Expenditure incurred (2018-19) Rs in lakh	Physical Target 2019-20	Proposed budget (As per BE) 2019-20 Rs in lakh	Tentative budget approval (For office use)
1	**Research & Development**							
	A. R&D Projects							
	A1	Projects continued through the year (No.)*	18 (12+6)	22 (16 +6)	197.00	6 (3+3)	41.65	
	A2	Projects Concluding (No.)*	6	4 (2+2)	1.14	20 (11+9)	201.44	
	A3	New project Initiation (No.)*	5	3 (External)	0.00	13 (9+4)	21.00	
	A4	Any other (Expert consultancy etc)						
		A. Sub-Total			**107.10**		**264.09**	
2	**Seed Organization** (Parental Seed, Store stationary -Chemicals, seed coccon , stores & stationary, POW, Expert consultancy,Travel, Security, ISO certification etc)							
3	**A. Transfer of Technology**							
	A1	Farmers meet cum exhibition/ Krishi Mela	3+2	3	5.00	3	5.00	
	A2	Field day / Farmers day/ Awareness programme	83	64	4.10	69	6.90	
	A3	Field day/Demonstration						
	A4	Vichar Gosthi/Group discussion	54	42	0.24	53	0.39	
	A5	Workshop / Seminar	2	1	0.50	3	3.00	
	A6	No. of technologies tranfered	5	5	0.15	11	0.30	
	A7	Technology Demonstration prog (No.)	14	9	0.27	14	0.42	
	A8	Dfls disribution under ToT/ technology validation	0	4420	0.45	10000	1.00	
	A9	No. of clusters/ Montoring of clusters	0	0	0.00	0	0.00	
	A10	IVLP / SMV/ VCPP	9	9	21.49	11	80.50	
	A11	Other (MLT/OST/Montoring VCPP etc.)	0	0	0	1	10.00	
		A.Sub- Total			**32.20**		**107.51**	

Sl. No.	Activity		Details					
			Physical Target 2018-19)	Achievement 2018-19	Expenditure incurred (2018-19) Rs in lakh	Physical Target 2019-20	Proposed budget (As per BE) 2019-20 Rs in lakh	Tentative budget approval (For office use)
4	**HRD/ Training**							
	B1	No. of training programs (including all programs like VCPP/ Skill enhancement/PCT trg./ Training capex Mangaement Dev. Trg./ SRC/ TP&FTP/ Trg under PCT/ etc	4 (1700)	4 (1301)	20.89	6 (1900)	42.20	
	B2	Structured course/ PGDS	0	0	0	0	0	
	B3	ISDS Trg.	0	0	0	0	0	
	B4	Any other / Need based trg.	1 (330)	1 (310)	0	1 (400)	0	
		B.Sub- Total			**20.89**		**42.20**	
4	**IT Initiative**							
	C1	Computer & prnt,Internet EPABX,LAN	1	1	0.15	12	8.00	
	C2	Computer aided app. /Mobile app. Development/ etc	0	0	0.00	0	0.00	
	C3	Other (Website development/ upgrading/ maintenance/ sending mesages etc	0	0	0.00	0	0.00	
	C4	Any other / Computer AMC	1	1	0.00	1	2.00	
		C. Sub-Total			**0.15**		**10.00**	
5	**Information, education and communication (IEC)- inclluding Periodicals, Publications, Extension literature, Films/ Videos (including success stories), Social media**		65	36	**0.70**	63	**0.70**	
6	**Quality control- ISO certification**		0	0	**0.00**	**0**	**0.00**	
7	**Maintenance of Existing infrastructure/ Asset** (including vehicle maintenance)				**55.12**		**4.00**	
8	**Asset Creation**							
	D1. Asset Creation / Instrument purchase				38.95		103.50	
	D2. Any Other item under asset creation like Vehicle, Mini tractor etc.				11.20		14.10	
		D. Sub-Total			**50.15**		**117.60**	
		1. Sub-Total (1 to 8)			**266.30**		**546.10**	
	Grand Total (1+2)				**266.30**		**546.10**	

Note: (1) Budget allocation (BE) is given at Annexure B1 / B2;
(2) Final Budget allocation may very.
(3) Point 3 to 8 are commen to both R&D and seed organisations
*** (CSB + External funded projects)**
All the expenditures/targets are of CSB funded projects only