ACTION PLAN FOR THE YEAR 2026-27
KEY PERFORMANCE INDICATORS (KPIs) FOR CSB INSTITUTES
CSB-CTRTI, RANCHI

Rs. in Lakhs

#	Particulars	Targets proposed for - 2026-2027		Remarks
		Physical	Financial	
I	**Core/Mandated activities of CSB**			
A	**Research Projects**			Annexure-I
a	CSB funded projects			
	i. Ongoing	12	172.066	
	ii. Concluded	4	27.29	
	iii. New	29	206.73	
b	Externally funded projects			
	i. Ongoing	1	9.44	
	ii. Concluded	1	7.72	
	iii. New	4	98.368	
c	International Collaborations	1	-	
d	Maintenance of germplasm (genotypes/ breeds)	341	5.00	*Host plant*
e	Disease monitoring/Pebrine monitoring /pest management etc	100	2.0	
f	Raw Material Bank			
	a. No. of cocoon to be purchased	25 Lakh	-	
	b. No. of cocoon to be supplied	30.34 Lakh	-	
	Sub total		**528.614**	
II	**Technology**			
a	IPs (Patent / Trademarks / Registrations)	02	1.00	
b	Commercialization	02	1.00	
c	Machines / Devices / Equipments / IOTs / App	02	2.00	
d	Technology Assessment and Refinement (TAR)	02	2.00	
	Sub total		**6.00**	
III	**Publications**			Annexure-III
a	Indian Journal of Sericulture	10		
b	Indian Silk	10		
c	Sericologia	8		
d	Others (NAAS/IF rated journals/SCI Index Journals)	10	1.00	
e	Other Publications /Publicity	10	3.00	
f	Social media	500		
	Sub total		**4.00**	
IV	**Extension**			Annexure-IV
a	Expansion of host plant area (ac)	--	--	

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b	Introduction of new components under Silk Samagra	2	--	
c	Monitoring of Projects implemented through Silk Samagra	Need Based	--	
d	Extension events (ECPs)			
	i. Awareness Programme	32/1600	3.20	
	ii. Technology Demonstration	32/800	1.60	
	iii. Farmers Field Day	36/3600	7.20	
	iv. Krishimela	07/1700	12.00	
	v. Workshop/Seminar/ National / International Conference/Symposium etc	01/200	15.00	
	vi. Field visits	240	2.50	
e	Technology transfer through OST	02	2.90	
f	Technology transfer through OFT/FFT	01	1.50	
	Sub total		**45.90**	
V	**Employment, Skilling & Livelihoods**			Annexure-V
A	Capacity building and training for sericulture sector			
i	PG Diploma in Sericulture	20	3.0	
ii.	Establishing and strengthening of sericulture resource centers (SRC)			
	i. SRC (Existing 5 units)	50 /1000	3.75	
	ii. New SRC	2	8.0	
iii	Structured training programmes			
	a. Farmers Skill Training Programme	18 (450)	16.875	
	b. ToP	4 (100)	3.80	
	c. Exposure visits	5 (150)	6.00	
	d. Other need-based training	100	--	
iv	Ad-hoc training programmes to Scientist /Staff for improvement of skills	--	--	
vi	Guideship	Need based	--	
	Sub total		**41.425**	
VI	**Infrastructure Development & modernization**			Annexure-VI
i	Strengthening of Laboratories	CSB-CTRTI	60.25	
ii	Accreditation of Laboratories	01	5.0	
iii	Strengthening infrastructure at nested units	10	8.95	
iv	Maintenance activities of R&D Institutes/Seed organizations	AMC of equipment/ instruments	5.0	

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v	Routine activities viz. farm upkeep, management of rearing / grainage buildings, PCT laboratories, Operational maintenance, upkeep of seed units and basic seed production units.	10	46.84	
vi	Establishment of seri-eco tourism, museum, exhibition halls etc.	--	--	
vii	E- governance Implementation (%)			
	i. eHRMS	100%		
	ii. CSB MIS	100%		
	iii. GoTKarmayogi	100%		
	iv. Linking with KPIs	100%		
	v. Updation of institute website	100%		
	Sub total		**126.04**	
VII	**Revenue Generation**	11	**25.00**	Annexure-VII
VIII	**Others, if any.**	5	**7.00**	Annexure-VIII
	Total (Rs in Lakhs)		**758.979**	

पि. शिवकुमार, भा.व.से. / P. Sivakumar, I.F.S.
सदस्य सचिव / Member Secretary
केन्द्रीय रेशम बोर्ड / Central Silk Board
वस्त्र मंत्रालय - भारत सरकार
Ministry of Textiles, Govt. of India
के.रे.बो. कांप्लेक्स, बी.टी.एम. लेआउट, मडिवाला
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I Core/Mandated activities of CSB
A Research Projects

Annexure-I

a CSB funded Research Projects

a.i Ongoing projects during the year 2026-2027

(Rs. In Lakhs)

#	Code	Title	Start	End	Milestones to be crossed	Progress to be achieved	Budget allocation
At main institute							
1	PIB04009SI	Evaluation of identified hybrids of *Terminalia arjuna* × *T. tomentosa* and drought tolerant accessions of *T. arjuna* for their suitability in different tropical tasar silkworm rearing regions.	Oct., 2021	Sep., 2027	Soil sampling and Analysis of soil nutrient content.	Evaluation of accessions and hybrids based on leaf biochemical traits	7.932
2.	ARP04016MI	Tasar Silkworm Disease Monitoring and Management	Mar., 2023	Feb., 2028	•Disease survey, visit to respective grainage, Data compilation, analysis, preparation and submission of report. •Collection of disease samples for morphological characterization of the pebrine using various tools. •Initial health condition of the worms / pupae will be monitored as a factor prior to the disease monitoring	Various morpho-variants will be identified. Disease monitoring will be done. Development of disease forewarning models.	7.164

					season •Disease monitoring and detection as per schedule (random samplings). •Statistical analysis of the data and development of disease forewarning models with relation to weather factors and region wise.		
3.	AIB 04018 MI	*In situ* Conservation of Modal Ecorace of Tasar Silkworm in Odisha	Mar., 2023	Dec., 2027	• Collection and preservation of wild cocoons of the first generation (Jhanji). • Establishment of pagodas and necessary infrastructure in the conservation zone. • Training and awareness programs for local communities on conservation practices. • In situ grainage activities in pagodas. • Release of eggs on host plants using leaf cups and release of gravid moths. • Observation of life cycle stages through litter fall and cocoon monitoring. • Collection and preservation of second-generation (Modal) wild cocoons.	• First- and second-generation wild cocoons (Jhanji and Modal) will be systematically collected from natural habitats, properly preserved, and documented to ensure conservation of genetic resources and availability for further analysis. • Pagodas and essential facilities will be maintained within the conservation zone, enabling effective in situ conservation, grainage activities, and maintenance of natural rearing conditions. • Local communities will be trained and sensitized on	49.57

					• In situ grainage activities for the second generation. • Release of eggs and gravid moths for population propagation. • Observation of life cycle stages of the second generation. • Genetic characterization of the Modal ecorace. Analysis of meteorological and ecological parameters, including temperature, humidity, rainfall, photoperiod, geoposition, edaphic factors, host	conservation practices, resulting in improved awareness, skill development, and active participation in protection, monitoring, and conservation-related activities. • Grainage activities will be successfully conducted under field conditions, ensuring proper moth emergence, mating, and oviposition. Eggs will be released on host plants using leaf cups and gravid moths will be released to promote natural population propagation. • Life cycle stages will be continuously monitored through litter fall observations and cocoon studies, generating detailed data on larval development, survival, cocoon formation, and generational variations.	

						• Genetic characterization of the Modal ecorace will be carried out to assess genetic diversity, variability, and adaptive traits, contributing to long-term conservation and improvement strategies. • Meteorological parameters such as temperature, humidity, rainfall, and photoperiod, along with ecological data including geoposition, soil characteristics, host plants, pests, predators, and hydrological factors, will be recorded and analyzed to understand their influence on biological performance. • Integrated biological, genetic, meteorological, and ecological data will be compiled and analyzed to generate baseline information,	

						supporting conservation planning, sustainable management, and future research initiatives.	
4.	AIB04019MI	In situ Conservation of Raily Ecorace of Tasar Silkworm in Chhattisgarh	Mar., 2023	Dec., 2027	• Training/awareness for local people for conservation. • Survey for population assessment during the Chaiti generation. • Observations of life cycle stages through litter fall/cocoons and recording the weather data during larval period • Documentation of pest and disease incidence • Collection of wild cocoons (First Generation Chaiti) and their phenotypic characterization. • Recording the metrological data during Grainage activity in situ in pagodas • Release of Raily Badho crop eggs on host plants through leaf cups and releasing of gravid moths. • Observations of life cycle stages through	• Creating awareness to the local people. • Documentation of population build-up. • Collection and characterization of Chaiti cocoons • Observation and documentation of lifecycle of raily ecorace in selected conservation sites • Studying impact of pest and diseases • Conservation of wild cocoons of Raily ecorace (Badho - Second generation) • Genetic characterization and metadata analysis	15.96

					litter fall/cocoons and recording the weather data during larval period Documentation of pest and disease incidence		
5.	AIB 04020 MI	*In situ* Conservation of Sarihan Ecorace of Tasar Silkworm in Jharkhand	Mar., 2023	Dec., 2027	Analysis of Meterologil (Average temperature, humidity, rainfall, photoperiod) and ecological data (geoposition, edaphic, host plants, pests, predators and hydrological data). Analysing the ecorace population through assessing the number of cocoons by ground and aerial survey. Genetic and phenotypic characterization of Sarihan ecorace population. Population dynamics of conserved Sarihan ecorace population. Collection of wild Sarihan cocoons (for II crop) and their preservation. Grainage activity in situ in pagodas. Erection of nylon net	Analysis of metrological and ecological data, genetic and phenotypic characterizatio and population dynamics. Conservation of Sarihan Ecorace(for II crop). The tropical tasar silkworm Sarihan ecorace will be conserved in its natural habit for the sustainable utilization and tribal welfare. Genetic characterization and metadata would be analysed.	32.99

					over *T.tomentosa* and *T. arjuna* trees inside the forest. Release of eggs on host plants through leaf cups, releasing of gravid moths through Chulla both inside and outside nylon net. Observation of life cycle stages through litter fall/ cocoons. Collectiob of wild cocoons and their preservation. Grainage activity in situ in pagodas. Release of eggs on host plants through leaf cups, releasing of gravid moths through Chullu both inside and outside nylon net. Observations on life cycle stages through litter fall / cocoons. Collection of all metadata. Genetic characterization of Sarihan ecorace. Analysis of Metrological		

					(Average temperature, humidity, rainfall, photoperiod) and ecological data (geoposition, edaphic, host plants, pests, predators and hydrological data).		
6.	PPA 04023 SIC	Identification of suitable package of practices for establishment of *Lagerstroemia speciosa* (Jarul) for quality leaf production	Mar., 2024	Feb., 2029	Maintenance of the study plots with regular cultural operations. Fertilizer application as per the treatments. Leaf analysis. Recording of pest and disease data. Recording of morphological growth data of the plants. Bioassay. Collection of soil samples. Analysis of soil samples. Analysis of leaf samples including NPK and amino acid profile.	• Maintenance of plants. • Assessment of leaf quality. • Assessment of growth indices of plants. • Application of the treatment doses of fertilizers • Data on disease and pest infestation. • Silkworm rearing. Assessment of soil quality.	4.0
7.	SRP04030SIC	Evaluation of the efficacy of identified formulations for the management of Cytoplasmic Polyhedrosis Virus in *Antheraea mylitta*	Mar., 2025	Feb., 2028	1. Establishment of isolated patches of host plants for screening under controlled conditions condition. 2. Characterization of healthy and diseased larvae and microbiome analysis 3. a.Rearing of tasar silkworm in the field b.Continue screening process	1. Isolated patches of selected tasar host plants will be successfully established and maintained to facilitate systematic screening under controlled field and semi-controlled conditions. 2.Healthy and diseased tasar silkworm larvae will be characterized	8.80

						based on morphological and pathological parameters, and their associated microbiome will be analyzed to understand disease–microbe interactions. 3.Field rearing of tasar silkworms will be undertaken to validate observations under natural conditions, and the screening process will be continued to assess disease incidence and host–pathogen responses across rearing cycles.	
8.	MTS 04029 MIC	Study on lab to land gaps in adoption & effectiveness of tasar technologies: Constraints and recommendations in major tasar growing areas	Mar., 2025	Feb., 2028	Development of knowledge and adoption gap index, identify the constraints in adoption and suggestions offered by the farmers & its validating Preparation of Master schedule Collection of data from the selected respondents through pre-tested structured schedule by personal interview method and data entry in Master table. Preparation of progress reports.	Development of knowledge and adoption gap index, identify the constraints in adoption and suggestions offered by the farmers, Preparation of Master schedule Collection of data from the selected respondents and data entry in Master table Preparation of progress reports.	10.80320
9.	PPS04031SIC	Exploration of C	Apr.,	Mar.,	Estimation of annual leaf	Assessment of C	6.85

		sequestration potential of *Terminalia* sp. and ways to increase the soil organic C stock	2025	2028	litter biomass generation and above ground biomass estimation	sequestration in above ground biomass in different aged plants and initiation of field assay for soil C build up	
10.	PPA04033MIC	Development of Standard Operating Procedure (SOP) for tasar host plant gene bank and maintenance of the gene bank using cultural package of practices.	Apr., 2025	Mar., 2028	Fencing using iron net around the field gene bank. Pruning of the plants to get new flush. Management of host plants in the gene bank using package of practices. Gap filling through planting the cuttings. Collection of phenotypic data about the gene bank. Pathway construction inside the gene bank.	Fencing around the gene bank and pruning would be completed. Proper management practices would be applied to maintain the host plants in the gene bank. Missing plants would be replanted as well as pathway would be constructed. Pathway would be constructed inside the gene bank.	9.8
11.	PRP04032SIC	Identification of pathogens associated with Tasar host plant diseases and their integrated management.	Apr., 2025	Mar., 2028	1.PCR assays and sequence analysis. In silico analysis of the sequenced genes for identification of the tasar host pathogens 2.Isolation of rhizospheric biological control agents (Trichoderma sp. Pseudomonas sp.) In vitro and In vivo evaluation of BCA against major Tasar host pathogens. 3. Evaluation of next generation safer fungicides (E.g: Strobilurins, Triazoles) at	PCR assays and sequencing of target genes will be completed, followed by in silico analysis to accurately identify and confirm the major pathogens associated with tasar host plants. Rhizospheric biological control agents, particularly *Trichoderma* spp. and *Pseudomonas* spp., will be isolated and characterized, and their antagonistic potential against major tasar	8.60

					different concentrations (in vitro poison plate assays and field based evaluation). 4. Botanicals having antifungal and antibacterial properties (eg: neem and neem based products), and they are evaluated in vitro and the field.	host pathogens will be evaluated through in vitro and in vivo studies. □ Next-generation safer fungicides (e.g., strobilurins and triazoles) will be assessed at different concentrations using in vitro poison plate assays and validated through field-based evaluations for their efficacy and suitability. □ Botanicals will be screened through in vitro assays and subsequently evaluated under field conditions to determine their effectiveness as eco-friendly disease management options.	
12.	PPA04031SIC	Development of High-Density Plantation of Tasar Host Plants and Exploration of Indoor Rearing for Tasar Silkworm Domestication	Oct., 2025	Sep., 2030	High-density plantations of tasar host plants and intercrops will be strengthened through gap filling, pruning, and optimized irrigation–fertilizer trials using chemical, organic, and biochar-based inputs to ensure uniform growth and sustained leaf	High-density mixed plantations of tasar host plants with intercrops are expected to be fully established with minimal gaps, showing improved plant vigor, uniform canopy development, and increased leaf biomass under	9.6

					supply. Indoor rearing will be initiated and continued under upgraded greenhouse and grainage facilities using DFLs from previous cocoons, along with large-scale rearing trials under revised management protocols to improve larval survival, cocoon spinning, and yield. Continuous monitoring and data collection will be carried out on larval development, cocoon and silk quality, grainage performance, plant growth, soil fertility, host health, and ecosystem interactions, including preliminary molecular disease diagnosis, to guide optimization and long-term sustainability planning.	optimized irrigation and fertilizer regimes. Indoor rearing in upgraded greenhouse and grainage facilities using DFLs from previous cocoons is expected to result in higher larval survival, reduced disease incidence, and improved cocoon yield and quality compared to baseline practices. Standardized pruning and pollarding schedules will ensure a consistent supply of nutritionally superior leaves, supporting stable larval growth and synchronized cocoon spinning during large-scale rearing trials.	
						Total	**172.066**

a.ii Projects to be concluded during the year 2026-2027

(Rs. In Lakhs)

#	Code	Title	Start	End	Progress achieved	Utility of out-put/ Impact on silk industry	Budget allocation
At main institute							
1.	SIP 04022 SIC	Impact of weather change on tasar food plants and silkworm	Mar., 2024	Feb., 2027	Two-year weather data was collected along with silkworm rearing data, plant crop data, pest and disease incidence to study the impact of wather on tasar sericulture.	Region wise data base about weather parameters and it's effect on tasar food plants and silkworm will be known. Information generated from the project can be used to make optimal decision with respect to economic, social and financial alternatives.	5.00
2.	PPA04024SIC	Effect of different plant spacing and pruning heights on chawki leaf productivity of tasar host plants (*Terminalia arjuna*, *T. tomentosa* and *Lagerstroemia speciosa*) and chawki silkworm rearing	Mar., 2024	Feb., 2027	Recommendation of chawki rearing in tasar silkworm rearing field.	Chawki rearing is a vital step to achieve higher productivity in silk industry. Chawki rearing in tasar industry would also enhance the silk production.	5.0
3.	BPS04026SNC	Nutraceutical solutions for sustainable aquaculture: Extraction and utilization of tasar pupae oil and meal in feed formulation	Mar., 2024	Sep., 2026	Evaluation of nutraceutical potential of oil. Data analysis, report preparation, publications	Nutraceutical potential will be identified Data analysis, report preparation, publications will be performed	9.00
4.	BPC04025SNC	Management of	Mar.,	Sep.,	Protection of tasar sericin	Study will be conducted in	8.29

		type II diabetic (T2D) condition through tasar sericin	2024	2026	tissue injury during T2D. Data analysis, report preparation, publications	diabetic model Data analysis, report preparation, publications will be performed	
						Total	**27.29**

a.iii New projects to be initiated during the year 2026-2027

(Rs. In Lakhs)

#	Code	Title	Start	End	Objectives	Expected outcome	Budget allocation
At main institute							
1.	CNID00262 (Concept submitted)	Smart silk patch: Dual-loaded bio adhesive system for bedsore healing and psoriasis	Apr., 2026	Mar., 2029	• To formulate a silk sericin protein-based bio adhesive patch integrated with phytocompounds for enhanced pressure ulcer and psoriasis • To characterize the physical, mechanical, antimicrobial and biocompatibility properties in-vitro • To evaluate the efficacy of the bio-adhesive patch in the appropriate animal model, analyze the tissue generation, collagen deposition, and inflammation markers, redox signaling towards healing mechanism	The study is expected to develop an effective silk sericin–based bio-adhesive patch with good mechanical strength, antimicrobial activity, and biocompatibility. The patch is anticipated to enhance healing in animal models by promoting tissue regeneration, collagen deposition, and reduced inflammation, supporting its potential use in pressure ulcers and psoriasis	25.19
2.	CNID00254 (Concept submitted)	Establishment of Artificial Insemination as an Assisted Reproductive Technique in	Apr., 2026	Mar., 2029	• To develop and optimize protocols for semen collection, preservation, and insemination in Antheraea mylitta	• Standard Operating Procedure (SOP) for semen collection, activation, AI, and cryopreservation for A. mylitta • Dataset and statistical	10.0

		Tropical Tasar Silkworm (Antheraea mylitta)			• To compare artificial insemination and natural mating in terms of fecundity, hatching, larval performance, cocoon yield, and silk quality • To establish a standardized pipeline for artificial insemination in the Tasar silkworm for reproductive management and genetic improvement programs	report comparing AI treatments vs natural mating for fertility, larval growth, cocoon yield, and silk quality • Recommendations on extenders and a validated cryopreservation protocol • A standardized artificial insemination pipeline will be developed to improve reproductive control, seed production, and genetic improvement in Tasar silkworm	
3.	CNID00238 (Concept submitted)	Evaluation of Hormonal Treatment and Starvation on the Life Cycle and Silk Gland Activity in Tasar silkworm (Antheraea mylitta)	Apr., 2026	Mar., 2029	I. To evaluate the effect of starvation stress on larval development, survival rate, and silk gland in Tasar silkworm. II. To analyze the impact of Juvenile Hormone (JH) and Ecdysone (20E) treatments on molting, silk gland function, and silk production in Tasar silkworm. III. To study the activity profile of silk glands based on endomitosis and the gene expression of silk gland-associated proteins.	• This study will provide insights into optimizing silk production under varying nutritional and hormonal conditions. • Help understand the physiology of voltinism, molting, and spinning in response to hormones and their analogue, thus helping to understand the behavior of tasar silkworms. • Insights from this study provide a molecular basis for improving tasar silk yield and quality by manipulating gene expression through hormonal interventions.	9.70
4.	CNID00147 (Concept submitted)	Selective Breeding for Genetic Improvement of Production Traits in	April., 2026	Mar., 2031	Objective 1: Establishing systematic selective breeding program for enhanced production traits in tropical	Improved and robust tasar silkworm line with higher yield, more number of cocoons/dfl, which can be	8.0

		Tropical Tasar silkworm			tasar silkworm Objective 2: Quantify genetic parameters and correlations among economically important production traits Objective 3: Evaluate genetic response and calculate breeding values for selection optimization	utilized at farmers' level through seed channel to enhance tasar silk productivity.	
5.	CNID00256 (Concept submitted)	Identification and Application of Semiochemicals for Population Monitoring in Tasar Silk Moth Ecoraces	April., 2026	Mar., 2029	Objective 1 : 1. To isolate and characterize sex pheromones of tasar silkmoth ecoraces and volatiles from their major host plants. Objective 2 : 2. To evaluate the electrophysiological and behavioral responses of male moths to identified semiochemicals Objective 3 : 3. To develop and field-test pheromone formulations for population monitoring	The study is expected to clarify the role of chemical cues in mediating ecorace and host plant interactions under natural conditions. It will lead to the development of a sex pheromone formulation for monitoring the population dynamics of different tasar ecoraces. Alongside this, a suitable slow-release dispenser and trap design will be developed to ensure effective field application. The techniques and tools generated through this work can also be extended to monitor other ecoraces and wild populations of tasar silkmoths, offering valuable insights into their distribution, seasonal activity, and migration patterns.	20.48
6.	RC Approved	Valorization of *Cordyceps militaris*	April., 2026	Mar., 2029	1. Cordyceps mass production	Dedicated single point incubator facility to cater	10.00

		through Vanya silkworm waste-Phase II			protocol developed in phase I of the project will be refined to shorten the crop cycle. 2. Cordyceps fruiting bodies will be processed and new functional ready to consume beverages such as cordyceps green tea and coffee will be formulated.	the needs of new entrepreneurs will be established. Cordyceps green tea and cordyceps infused coffee are expected.	
7.	RC Approved	Arjun-Asan graft composites for improving leaf quality, yield and climate resilience of tasar host plants	April., 2026	Mar., 2031	1. To standardize Arjun-Asan grafting protocol and develop graft composites using different accessions of Arjun and Asan 2. To evaluate different graft composites for yield, quality and stress tolerance parameters at field level 3. To assess the performance of different composites for silkworm rearing and reeling parameters	Coming out with an Arjun-Asan graft composite with higher leaf yield, quality and climate resilience for sustainable tasar sericulture	10.00
At Nested Units							
8.	RC Approved & concept submitted to CO	Enhancing leaf juvenility in oak through biostimulants application for temperate tasar sericulture (3 years)	April., 2026	Mar., 2029	1. To design and optimize leaf-targeted nutrient-enriched formulations for enhancing overall quality of *Quercus* sp. leaves. 2. To evaluate the influence of these formulations on plant growth and productivity in different seasons. 3. To investigate the cascading	• Development of nutrient based stimulants that significantly improve nutritional attributes in leaves of *Quercus* sp. • Revealing the seasonal variation of leaf quality and productivity. Provides scientifically validated combined	10.52

					effects of enriched leaves on oak tasar silkworm.	nutrient based strategies to improve Oak tasar leaf quality.	
9.	RC Approved & concept submitted to CO	Innovative approaches for effective preservation of *A proylei* J seed cocoons to minimize preservation loss	April., 2026	Mar., 2029	1. To evaluate the effectiveness of different preservation techniques on seed cocoon viability and shelf life. 2. To determine the impact of optimized preservation strategies on seed viability, moth emergence, fecundity and subsequent generation performance.	Standardized preservation method wills effectively minimize preservation loss to improve quality seed (Dfls) production.	23.32
10.	Ten (10) New Projects to be initiated	--	--	--	--	--	79.52
						Total	**206.73**

Annexure-I (b)

b Externally funded projects

b.i Ongoing externally funded projects during the year 2026-2027

(Rs. In Lakhs)

#	Code	Title	Start	End	Progress achieved	Utility of out-put/ Impact on silk industry	Budget allocation
At main institute							
1.	AIT04028SNE	Inflatable mucoadhesive vaginal tablet coin (VTC) for instant spermicidal action as local vaginal contraceptive and microbicide **(DBT Funded)**	Aug., 2024	Jul., 2027	Isolation and characterization of fibroin from different tasar ecorace Data analysis, report preparation, publications	Fibroin will be isolated and will be characterized Data analysis, report preparation, publications will be performed	9.44
						Total	**9.44**

b.ii Externally funded projects to be concluded during the year 2026-2027

(Rs. In Lakhs)

#	Code	Title	Start	End	Progress achieved	Utility of out-put/ Impact on silk industry	Budget allocation
At main institute							
1.	AIT 04026 SIE	Development of KASP Based SNP Barcoding System for the Molecular Identification of Tropical Tasar Silkworm Ecoraces **(DBT Funded)**	Jul., 2024	Jun., 2026	• A validated, cost-effective KASP-based SNP barcoding system will be developed for the precise molecular identification of tropical tasar silkworm (*Antheraea mylitta*) ecoraces. • Conversion of high-density SNPs identified through ddRAD sequencing into low-density, highly specific KASP-SNP markers capable of discriminating among different tasar ecoraces. • Optimization and validation of KASP markers across a wide range of *A. mylitta* ecoraces collected from different geographical regions of India. • Establishment of a standardized laboratory protocol for rapid, high-throughput molecular identification of tasar ecoraces using real-time PCR platforms. Generation of a reliable SNP-based genetic reference dataset serving as a molecular signature for identified tasar ecoraces.	• Accurate molecular identification will prevent inter-crossing and genetic contamination of tasar ecoraces, supporting effective in situ conservation strategies. • The developed KASP markers will facilitate marker-assisted selection (MAS), enabling the use of genetically pure and correctly identified ecoraces in breeding programs. • Proper utilization of genetically distinct ecoraces with desirable traits will contribute to improved cocoon yield, silk quality, and overall tasar productivity. • The KASP-based system offers a faster, scalable, and economical alternative to conventional molecular methods, making it suitable for routine use in research and breeding laboratories. • Molecular authentication of tasar ecoraces will safeguard India's unique	7.72

						and endemic tasar genetic resources, preventing misidentification and loss of biodiversity. • Reliable genetic data generated through this project will aid policymakers and research institutions in planning conservation, breeding, and sustainable development strategies for the tasar silk sector. Improved tasar silkworm conservation and breeding efficiency will ultimately benefit tribal and forest-dependent communities by enhancing livelihood opportunities through a more resilient silk industry.	
						Total	**7.72**

b.iii Externally funded projects to be initiated during the year 2026-2027

(Rs. In Lakhs)

#	Code	Title	Start	End	Progress achieved	Utility of out-put/ Impact on silk industry	Budget allocation
At main institute							
1.	Submitted to BIRAC-DBT under GCI-VFI-17/25-Accelerating Innovation in Vaginal Formulations in Support of Women's Health	Localized delivery of antimicrobials through novel electrospun nanofiber mat of Poly sodium 4-	Apr 2026	Mar 2028	a. Preparation and evaluation of Vaginal Nanofiber Mats (VNFM) b. Preparation and evaluation of NANOCOACERVATE Vaginal	The study is expected to successfully develop and evaluate vaginal nanofiber mats, nano-coacervate vaginal pessaries, and vaginal minitablets with	24.22

		styrene sulfonate grafted Tasar Silk proteins-Polyvinyl alcohol blend (TSP-g-PSS-PVA) for bacterial vaginosis treatment			Pessaries (NCVP) c. Preparation and evaluation of Vaginal Minitablets (VMT)	optimal drug loading, stability, mucoadhesion, and controlled release. These formulations are anticipated to enhance vaginal retention, improve local therapeutic efficacy, and offer safe, stable, and patient-acceptable vaginal drug delivery systems	
2.	BTPR47097NER9519722023 (DBT Funded project under consideration) CNID00256	Exploration of pheromones and kairomones for the management of parasitic pests of vanya silkworms	Apr 2026	Mar 2029	Isolation and characterization of pheromones and kairomones Assessing the electrophysiological and behavioral assay d. Assessing the efficacy of the semiochemicals	Expected outcome would be development of pheromone and kairomone blends to manage the major parasitoids of vanya silkworms by trapping them. Developed formulation can be integrated with existing traps devices and can be effectively utilized for the management of uzifly and ichneumon fly in both tasar and muga culture and it will greatly help to reduce the crop loss due to these pests.	20.48
3.	CNID00257 (Submitted for ANRF)	Establishing the Pangenomic repository of Indian	Apr 2026	Mar 2029	•To draft pangenomic assembly of silkworm species found in India • To identify and annotate Presence-	For the first time pangenome of indigenous silkworms would be drafted and submitted to the	37.428

		silkworms			Absence Variations (PAVs) found in the pangenome • To validate using Whole Genome Resequencing (WGRS) in further samples	NCBI. The high-depth ONT data (50–80×) will capture complex genomic regions, including repetitive elements and structural variants that are often underrepresented in short-read assemblies. The resulting assemblies will enable detailed characterization of genetic diversity across vanya silkworm species and strains. Through pan-genomic analysis using OrthoFinder, the project will identify core, dispensable, and lineage-specific genes, offering insights into genomic adaptation, domestication, and traits linked to silk yield, quality, and environmental resilience. In addition to genome assembly, variant calling will generate a comprehensive catalog of single nucleotide polymorphisms (SNPs) and	

						insertions/deletions (Indels). These variants will serve as valuable molecular markers for population genomics, association mapping, and genetic improvement programs. The data will also support annotation of genes involved in silk protein synthesis, disease resistance, and stress tolerance. The generated genomic resources will have several practical applications. First, they will provide a reference framework for molecular breeding and marker-assisted selection in vanya silkworm improvement programs. Second, the identification of unique genetic regions and adaptive genes will help conserve valuable wild genetic resources and guide crossbreeding strategies to enhance productivity. Third, these resources will	

						facilitate the development of pan-genomic databases specific to Indian silkworm species, supporting both academic research and industrial applications in sericulture. Ultimately, this project will establish a genomic foundation for understanding the evolutionary and functional diversity of Indian vanya silkworms. The integration of genomic, transcriptomic, and variant data will enable targeted interventions to improve silk yield and quality, contributing to the long-term sustainability and competitiveness of India's sericulture industry.	
4.	CNID00148 (Submitted for ANRF)	Identification of metabolites controlling gene expression for silk synthesis in Tasar silkworms	Apr., 2026	Mar., 2029	Decorrelation and Curation of Convergence-model trained on Tasar germplasm- Metabolites, Differentially Expressed Genes,	1. Cataloguing of Omics composition and use of software devised may be extrapolated crossing species barrier, to clinical level 2. Digital twinning will explore all possible	16.24

					Epigenetic marks, phenotypic, Foliar-digestibility and distribution data including Proximate and Ultimate Analysis of food. Machine learning models like Ensemble, coupled with Decorrelation and flexibility across layers will be evolved and deployed (TasarNet). Designing the Tasar Digital Twin for Simulation Experiments • Optimizing and Priortizing CRISPR Candidate for Genome Editing for better food conversion efficiency	phenotypes which is often a limitation in usual experiments 3. Capacity building of personnel Long term: 1. The use of software devised may be extrapolated crossing species barrier, to clinical level 2. Digital twinning will explore all possible phenotypes which is often a limitation in usual exper-iments 3. This holistic approach of studying interconnection between central dogmas shall delineate complex mechanisms underlying silk synthesis. This knowledge can guide selective breeding programs and to edit the genomes. 4. Collaborations with relevant organizations or agencies for the implementation of strategies derived from the research outcomes	
						Total	**98.368**

II. Technology

Annexure-II
(Rs. In lakhs)

#	Item	Patent No., Date of filing patent by NRDC, Technology commercialized to & Date of license.	Target	
			Physical (No)	Budget allocation
a	IPs (Patents/trademarks/Registration)	Trademark (Tasar Touch Soap) Patent Nitrogen funnel	2	1.0
b	Commercialization	Tasar Touch Soap, Nitrogen funnel	2	1.0
c	Machines/devices/equipments/IoTs/Apps	--	2	2.0
d	Technology Assessment and Refinement (TAR)	--	2	2.0
		Total		**6.00**

III. Publications

Annexure-III

#	Item	Physical (No)	Proposed Budget (Rs. In lakhs)
a	Indian Journal of Sericulture	10	
b	Indian Silk	10	
c	Sericologia	08	
d	Others (NAAS/IF rated journals/SCI Index Journals)	10	1.00
e	Other Publications /Publicity	10	3.00
f	Social Media	500	
	Total		**4.00**

IV. Extension

IV.d Extension Communication Programmes-2026-2027

Annexure-IV.d

Sl. No	Programmes	Unit cost (Rs.)	Target		
			No of programmes	No of stakeholders	Budget allocation (Rs. In lakhs)
a	Expansion of host plant area (ac)	--	--	--	--
b	Introduction of new components under Silk Samagra	--	2 (components)	--	--
c	Monitoring of Projects implemented through Silk Samagra	--	Need Based	--	--
d	i. Awareness Programme	0.10	32	1600	3.20
	ii. Technology Demonstration	0.05	32	800	1.60
	iii. Farmers Field Day	0.20	36	3600	7.20
	iv. Krishi Mela (Main Institute + Nested Units)	3 & 1.5	1 & 6	1700	12.00
	v. Workshop/ Seminar/ National/ International/ Conference/ Symposium etc.	15.00	01	200	15.00
	vi. Field visits	-	240	-	2.50
	Total		**348**	**7900**	**41.5**

Transfer of Technologies (TOTs) programmes conducted during 2026-2027

Annexure-IV.e

IV.e Transfer of Technologies through On Station Trials (for validation of technology at CSB institutes/ RSRSs/ DoS units etc.)

#	Name of the Technology	Unit Cost (Rs.)	At CSB institutes	RSRSs	DOS Units	Total	Anticipated impact	Budget (lakhs)
1	Validation of ECM inoculated seedlings of Arjun and Asan	50,000	01	03	-	04	Higher survival and leaf yield	2.00
2	Field Evaluation of Bhelwa seed oil-based repellents cum barrier against predatory ants.	15,000	01	05	-	06	Effective management of predatory ants in reaing fields.	0.90
	Total:							**2.90**

Annexure-IV.f

IV.f On Farm Trials (for demonstration of Technologies at farmers' level)

Sl. No		Name of the Technology	Unit Cost (Rs.)	No. of locations	No. of stakeholders	Anticipated impact	Budget allocation (Rs. Lakhs)
1		Validation of suitable pruning and bursting schedule.	25,000	06	06	Suitable pruning and brushing schedule for higher leaf yield and cocoon production.	1.50
		Total:					**1.50**

V. Employment, Skilling & Livelihoods

V.A Capacity building and training for sericulture sector (2026-2027)

Annexure-V.A

Sl. No.	Title of the training programme	Unit cost (Rs. in lakhs)	Target		
			No of progr ammes	No of stake holders	Budget proposed (Rs.in lakhs)
i	PG Diploma in Sericulture (Vanya Silk)	3.00 lakh/ batch	1	20	3.00
ii	Establishing and strengthening of sericulture resource centers (SRC)				
a	SRC (Existing 5 units)	0.00375/trainee	50	1000	3.75
b	New SRC (2 units)	4.00 lakh/SRC	10	200	8.0
iii.	Structured Training Programmes				
a	Farmers Skill Training	0.0375/farmer	18	450	16.875
b	Technology Orientation Programme (ToP)	0.038/trainee	04	100	3.80
c	Exposure visits	1.20/programme	05	150	6.00
d	Other need-based training	--	-	100	-
iv	Ad-hoc training programmes to Scientist /Staff for improvement of skills	--	-	-	-
v	Development of curriculum	--	-	-	-
vi	Guideship	Need based	-	-	-
	Total		**88**	**2020**	**41.425**

VI. Infrastructure development and modernization (2026-2027)
VI.i Strengthening of Laboratories (CSB-CTRTI, Ranchi)

Annexure-VI.i
(Rs. In Lakhs)

#	Items/ Equipment / other accessories	Justification	Target	
			Physical (No)	**Budget allocation**
Under Ongoing R&D projects:				
6.1	Double beam UV Spectrometer (PPA04023SIC)	Spectrophotometer will be required for estimation of Phosphorus in leaf samples	1	5.00
6.2	Micro weighing balance with software (PPA04023SIC)	Micro weighing balance will be required for precise weighing of samples and chemicals for soil and leaf analysis.	1	1.70
6.3	UV Spectro photo Meter (PPA04033MIC)	For leaf chlorophyll, secondary metabolites, nutrient content analysis (Carbohydrate, Protein, Phenol, Tannins etc.) and quantification to detect the biochemicals, responsible for the plant-silkworm interaction. For germplasm accessions characterization.	1	5.00
6.4	Autoclave (PRP04032SIC)	Important for sterilizing all the plastic wares/glassware/buffers which are essential for the analysis of various metadata.	01	2.00
6.5	-20 degrees Celsius freezer with back up (PRP04032SIC)	-20°C Deep Freezer is very much essential for storing the diseased samples and enzymes for analysing the genes. Since there is no -20 °C deep freezer in Farm and agroforestry section and the ones which are in working condition in our institute are completely occupied and there is no space for further storage.	01	3.00
6.6	Weighing balance (PRP04032SIC)	A weighing balance is a fundamental tool for laboratories for precision in measurements and for pathological works.	01	1.00
6.7	Microwave oven (PRP04032SIC)	A microwave oven is a highly practical and cost-effective addition to a laboratory. It enhances the	01	0.10

		efficiency of sample preparation, media sterilization, and heating processes, making it indispensable for plant pathology		
6.8	Bacteriological Incubator with stabiliser (PRP04032SIC)	A bacteriological incubator is essential to provide a controlled environment conducive to the growth and study of microorganisms. This is critical for accurate experimentation and analysis. As there no bacteriological incubator in the EMA section for pathological works.	01	3.00
6.9	Vortex multispin/centrifuge (PRP04032SIC)	A vortex multispin is an advanced laboratory instrument designed to combine vortexing and spinning functions, making it highly versatile and efficient for sample preparation and mixing.	01	0.20
6.10	Hot air woven (PRP04032SIC)	To ensure effective dry heat sterilization of glassware and laboratory instruments. It helps maintain aseptic conditions required for accurate and contamination-free experimental work.	01	1.20
6.11	ELISA Reader (BPC04025SNC)	An ELISA reader is essential for the quantitative estimation of specific biomarkers such as inflammatory cytokines, growth factors, oxidative stress markers, and other proteins relevant to disease progression and healing mechanisms. Its high sensitivity, specificity, and reproducibility enable accurate analysis of biochemical parameters involved in inflammation, tissue regeneration, and redox signaling, thereby supporting reliable evaluation of therapeutic efficacy in in-vitro and in-vivo studies	01	5.00
6.12	Two-wheeler (AIB04019MI)	Imperative for recurrent monitoring of conservation and collection of required metadata from the conservation zone.	01	1.50
6.13	Vehicle – Two-Wheeler (AIB 04018 MI)	Imperative for recurrent monitoring of conservation and collection of required metadata from the conservation zone.	01	1.50
6.14	Vehicle – Two-Wheeler (AIB 04020 MI)	Imperative for recurrent monitoring of conservation and collection of required metadata from the	01	1.50

		conservation zone.		
6.15	Autoclave (AIB 04018 MI)	Important for sterilizing all the plasticwares/glassware/buffers which are essential for the analysis of various metadata.	01	3.00
			Sub-Total	**35.70**
Projects to be initiated during 2026-27 (Externally Funded):				
6.16	Portable air entrainment system (Portable Volatile Assay System) (Dr. H. S. Gadad), External Funding	Very much essential for collection of sex pheromones and host associated kairomones.	01	6.49
6.17	Choice (Four-Arm) Arena Olfactometer with Air delivery system (Dr. H. S. Gadad), External Funding	To conduct the behavioral assessment of identified semiochemical compounds based on electrophysiological studies.	01	5.90
6.18	Insect growth Chamber (Dr. H. S. Gadad), External Funding	For rearing of and maintaining of target pest population under laboratory condition as study requires to lot of target insect cultures for bioassay studies.	01	3.00
6.19	-20^{o}C Deep Freezer with Inverter (Dr. H. S. Gadad), External Funding	-20 °C defreezer id required for preservation of volatile organic compounds and other temperature sensitive chemicals.	01	2.98
6.20	Dry bath incubator (Dr. H. S. Gadad), External Funding	To sterilize semiochemical collecting traps (Porapak Q odour cartridges).	01	0.71
6.21	Refrigerated Centrifuge (Dr. Divya Rajawat), (DBT)	The refrigerated centrifuge is a critical addition to the laboratory, ensuring efficient and high-quality sample processing and supporting advanced research. Temperature-controlled separation for sensitive samples will also be carried out.	1	4.0
6.22	Vortex multispin/centrifuge (Dr. Divya Rajawat), (DBT)	A vortex multispin is an advanced laboratory instrument designed to combine vortexing and spinning functions, making it highly versatile and efficient for sample preparation and mixing.	01	0.2

6.23	Biosafety cabinet (Divya Rajawat), (DBT)	**A** biosafety cabinet (BSC) is a critical piece of equipment for RNA isolation in laboratories handling sensitive biological samples. It is indispensable for ensuring the integrity of RNA isolation and enhancing the overall quality	01	4.0
6.24	Magnetic Bead Beater (Dr. Nidhi Sukhija), (ANRF)	Required for efficient and uniform homogenization of silkworm tissues and disease samples for DNA/RNA/protein extraction during pathogen detection, molecular characterization, and downstream diagnostic analyses under the project.	1	5 .0
			Sub Total (Externally funded)	**27.28**
Others (General):				
CSB-CTRTI, Ranchi				
6.25	Mixer Grinder (Soil Science)	For lab work	1	0.10
6.26	Vortex Mixer (Soil Science)	For lab work	1	0.05
6.27	Centrifuge (SRT Section)	For lab work	1	0.50
6.28	Frame loom (Iron) with Jacquard with all accessories (PCT)	For research work, Training & Demonstration to farmers, PGDS Students	01	1.5
6.29	Split AC (1 BNG & 2 Silkworm Pathology)	For maintaining lab conditions 7 Cordyceps' cultures	3	2.00
6.30	Refrigerators (PMCE, Silkworm Entomology, FM & Agroforestry)	For lab work	03	2.10
6.31	UPS (5 KV): FM & Agroforestry	For office work	1	2.00
6.32	Precision Weighing Balance (FM & Agroforestry)	For lab use	1	1.00
6.33	Desktop Computers (2 PMCE, 3 FM & Agroforestry, 1 Training, 2 Silkworm Pathology, 1 Soil Sc., 1 SRT, 1 Training, 1 SEEM, 1 BNG)	For office work (8 newly recruited scientists and 4 other scientists in different sections)	12	8.40

6.34	Printers (2 FM & Agroforestry, 1 BNG, 1 Silkworm Pathology & 1 SRT)	For different sectional works	5	0.60
6.35	Scanners (1 Training, 1 PMCE, 1 SEEM, 1 FM & Agroforestry & 1 Scanner)	For different sectional works	5	0.50
6.36	Auto feed Scanner (Store Section)	For different sectional works	1	0.30
6.37	RO systems	For Institute Use	2	1.00
6.38	Office Table (2 FM & Agroforestry, 1 SEEM, 1 BNG & 1 SRT)	For different sections	5	0.75
6.39	Revolving Chair (2 FM & Agroforestry, 1 SEEM, 1 BNG & 1 SRT)	For different sections	5	0.35
6.40	Geaser (Training)	For Training Hostel	5	0.70
6.41	Matresses (Training)	For Farmer's Hostel	25	0.70
6.42	Iron Cots (Training)	For Farmer's Hostel	25	1.00
6.43	RO System (Training)	For Farmer's Hostel	1	0.50
6.44	Invertor (5 Kv)	For Farmer's Hostel		1.50
			Sub-Total	**24.55**
			Total (CSB Funds)	**60.25**

VI.iii Strengthening of infrastructure at nested units

Annexure-VIiii

A. Nested Units of CBS-CTRTI, Ranchi			
Desktop Computer (SEEM)	For RSRS Baripada, Bhandara, Dumka, Warangal, Bhimtal, REC Champa & P4 TBS Chakradharpur	07	3.50
Printer (SEEM)	For RSRS Baripada, Bhandara, REC Champa, Palampur & P4 TBS Chakradharpur	05	1.50
Scanner (SEEM)	For RSRS Baripada, Bhandara, REC Champa, Palampur & P4 TBS Chakradharpur	05	0.50
UPS (SEEM)	For RSRS Baripada, Bhandara, Dumka, Warangal, Bhimtal, REC Champa & P4 TBS Chakradharpur	07	0.35
Student Microscope (SEEM)	For RSRS Warangal, RSRS Bhandara & P4 TBS Chakradharpur	06	0.30
Air conditioner (SEEM)	For RSRS Warangal	01	0.50
Laptop (SEEM)	For Scientist-D, RSRS Bhimtal	01	0.80
Projector with screen (SEEM)	For RSRS Bhimtal	01	0.50
Biomatric Machine (General), (SEEM)	For RSRS Warangal	01	0.50
Biomatric Machine (Adhar Base), (SEEM)	For RSRS Warangal	01	0.50
		Sub-Total	**8.95**

VI.v Routine activities viz. farm upkeep, management of rearing / grainage buildings, PCT laboratories, operational maintenance, upkeep of seed units and basic seed production units.

Annexure-VI.v

(Rs. In Lakhs)

#	Activity	Justification	Budget allocation
1	Conservation and popularization of local eco-races in situ conditions	To carry out technical activity of **nested units** working under CTRTI, Ranchi for the year 2026-2027	4.45
2	Production of vermin-compost by units		1.00
3	P-4 rearing, grainage and other activities		6.95
4	Oak Tasar preponed rearing, cocoons purchase and other activities		3.29
5	Popularization of viable technologies		3.15
6	Maintenance of Farm/ Plantation		2.50
7	Adoption of farmers		5.00
8	2000 Man-days for Nested Units		10.00
9	Seasonal labourers 20000 Man-days for FM & Agroforestry Section, CSB-CTRTI, Ranchi	For proper managing farm activities, project work, agroforestry, garden management, nursery raising etc.	10.00
10	Farm machineries and equipment maintenance (FM & Agroforestry, CSB-CTRTI, Ranchi)	For proper mechanization of farm activities.	2.50
		Total:	**46.84**

VII. Revenue generation (2026-27)

Annexure-VII
(Rs. In Lakhs)

#	Source of Revenue Generation	Physical (No.)	Revenue to be generated
I	**Patent (Technology)**		
1	License Fee collected		0.50
2	Vanya host plant sapling/ seedling		0.10
3	Cocoons		2.00
4	Output from R&D Projects (Silk, fabric etc)		1.00
5	Licence fees of Quarters and Hostel rent		5.00
6	Recovery of loans and advance		2.50
7	Refund of advance deposits		2.00
8	Rent & Hiring Charges/Electricity		4.00
9	Sale of miscellaneous		4.00
10	Interest/ Penalty		0.40
11	Previous year recovery		3.50
	Total		**25.00**

VIII. Others, if any

Annexure-VIII
(Rs. In Lakhs)

#	Activity	Justification	Budget allocation
1	Institute advertisement	For publicity of activities carried out by CTRTI, Ranchi	1.00
2	Swachh Bharat Programme	Regular programme	0.60
3	Foundation Day	Regular programme	2.00
4	Organizing RAC Meeting	For evaluation of R&D, ECP, CBT and ToTsprogrammes	3.10
5	Soil Samples testing to be carried out during the year 2026-2027	Jharkhand, Chhattisgarh & Odisha (200 Samples)	0.30
		TOTAL	**7.00**