

A Journey Through Science, Heritage, and Design: An Induction Training Experience

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As part of the induction training programme for the newly recruited Scientist-B of the Central Silk Board (Batch II, 2025) conducted at Jorhat from 17th November to 19th December 2025, we found ourselves stepping into a world where science, heritage, and nature coexist in quiet harmony the Germplasm Conservation Centre (GCC) at Chenijan, the Silkworm Seed Production Centres, the Rain Forest Research Institute (RFRI), and the National Institute of Design (NID), Jorhat. What began as an official visit soon unfolded into a meaningful journey that deepened our appreciation for the fragile yet resilient ecosystem sustaining India's legendary Muga and Eri silks.

I. Germplasm Conservation Centre (GCC), Chenijan

Nestled in the fertile heart of Assam, the GCC stands as a living archive of genetic memory, a sanctuary for host-plant diversity, and a silent force powering the future of sericulture in Northeast India. As the land-holding and resource backbone of the Central Muga Eri Research and Training Institute (CMER&TI), Lahdoigarh, the centre plays an indispensable role in sustaining vanya silk culture. During our visit, Dr. Harisha R. Scientist-B, emphasized that the primary mandate of the GCC is the **conservation of**



Visit to the Germplasm Conservation Centre

genetic resources. Functioning as a dynamic **live gene bank**, the Centre is dedicated to conserving the germplasm of host plants essential to Muga and Eri silkworms. This involves maintaining a broad diversity of host-plant species to safeguard against genetic erosion. The host plants of vanya silkworms are categorised as **primary** and **secondary**, based on the silkworms' feeding preference:

- **Muga silkworm** (*Antheraea assamensis*) primarily feeds on Som (*Persea bombycina*) and Soalu (*Litsea polyantha*), and secondarily on *Dighloti* (*Litsea salicifolia*) and *Mejankari* (*Litsea citrata*).
- **Eri silkworm** (*Samia ricini*) feeds mainly on *Castor* (*Ricinus communis*) and *Kesseru* (*Heteropanax fragrans*), followed by host plants such as *Tapioca* (*Manihot esculenta*), *Barpat* (*Ailanthus grandis*), and *Borkesseru* (*Ailanthus excelsa*).

The Centre also maintains diverse **Eri ecoraces** such as Borduar, Titabar, and Kokrajhar, along with strains like Yellow Plain (YP), Greenish Blue Spotted (GBS) and Greenish Blue Plain (GBP). The genetic variability conserved at GCC forms the foundation for ongoing research aimed at:

- Enhancing host-plant productivity to ensure higher yields for farmers.
- Improving silk quality for better market value.
- Developing more resilient silkworm strains capable of withstanding diseases, pests, and environmental stress.

The work at Chenijan goes far beyond preservation—it represents a commitment to securing a sustainable and prosperous future for Assam’s iconic Golden Muga and eco-friendly Eri silks.

II. Silkworm Seed Production Centres, Jorhat

Silkworm seed production is the backbone of the entire silk industry. It ensures a stable supply of healthy, disease-free layings (DFLs), which directly determine the quality of cocoons, yield, and ultimately the silk produced. Reliable seed production safeguards farmer livelihoods, supports rural economies, and reduces the risk of crop failure. At the centre, Dr. Arunkumar, Scientist-B, provided an insightful overview of the complete silkworm egg-production cycle. He explained the importance of bivoltine silkworm eggs and their preservation under 4, 6, 8, and 10 month schedules, tailored to farmers’ seasonal needs.



Visit to the Silkworm Seed Production Centre

We learned about:

- **Voltinism** and its influence on rearing seasons
- **Bivoltine seed cocoon generation**
- **Quality checks** ensuring disease-free stock
- **Mother Moth Examination**, a method proposed by Fujiwara for disease detection
- Marketing and timely release of disease free layings to farmers

The centre conducts silkworm rearing twice a year, aligning with favourable environmental conditions—an essential practice to maintain production efficiency.

III. Rain Forest Research Institute (RFRI), Jorhat

Our next destination was the Rain Forest Research Institute, where Shri Sankar Jyoti Bora took us through its rich institutional history. Established initially in 1976 as a Regional Centre of the Forest Research Institute, Dehradun, and upgraded over time, RFRI has evolved into a premier organisation supporting forestry research, conservation, and extension in India’s northeastern region. Today, the Institute boasts a multidisciplinary team of scientists delivering need-based solutions in forest science—contributing to conservation, restoration, and sustainable management of forest resources across the Northeast. A highlight of our visit was the **Bambusetum**, a curated living collection of bamboo and cane species serving as a genetic resource bank and research hub. It houses an impressive range of species, including:



- *Bambusa* spp.: *B. balcooa*, *B. bambos*, *B. nutans*, *B. tulda*, *B. vulgaris*
- *Dendrocalamus* spp.: *D. hamiltonii*, *D. longispachus*, *D. giganteus*, *D. asper*, *D. strictus*
- Other genera: *Melocanna baccifera*, *Pseudosasa japonica*, *Schizostachyum dullooa*, *Thyrsostachys oliveri*, *Phyllostachys manni*, among several others



Visit to the Rain Forest Research Institute

The collection includes native, exotic, rare, and ornamental species - providing a broad genetic base for research and value-addition initiatives. We also viewed miniature wood models, visited the insect museum featuring forest pests, and explored the campus, observing diverse bamboo species and medicinal plants meticulously maintained for research and conservation.

IV. National Institute of Design, Assam (NID Jorhat)

The final stop on our journey was the National Institute of Design, Assam—widely known as NID Jorhat. Recognised as an Institution of National Importance under the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, it stands as one of India's premier institutes for design education. Director Prof. J. P. Sampath Kumar explained the institute's role in nurturing future designers through a four-year Bachelor of Design (B. Des.) programme. The curriculum seamlessly blends creativity, technology, hands-on experimentation and industry collaboration. Students can specialise in:



Visit to the National Institute of Design

Industrial Design
Communication Design
Textile & Apparel Design

We toured various facilities, including the prototyping and model-making labs, design studios, digital labs, and textile workshops. The energy and creativity reflected in student work reaffirmed the institute's commitment to experiential learning and skill development.

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Conclusion

The induction training programme for newly recruited Scientist-B officers of the Central Silk Board (Batch II, 2025) at Jorhat provided valuable exposure to institutions working at the intersection of sericulture, forestry, and design. The visits included the Germplasm Conservation Centre (GCC) at Chenijan, which functions as a live gene bank preserving diverse host-plant species and eri ecoraces to support research aimed at improving host-plant productivity, enhancing silk quality, and developing resilient silkworm strains. The Silkworm Seed Production Centres at Jorhat highlighted the importance of producing disease-free layings (DFLs) for sustaining sericulture. The Rain Forest Research Institute (RFRI), with its Bambusetum—a living collection of diverse bamboo and cane species—showcased the institute's role in maintaining genetic resources and promoting sustainable forest management. The visit to the National Institute of Design (NID), Jorhat, provided insights into design education and innovation.