

NAGALAND INSTITUTE OF SCIENCE & TECHNOLOGY



ANNUAL REPORT 2025-2026





NAGALAND INSTITUTE OF SCIENCE & TECHNOLOGY

Annual Report 2025 - 2026

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From The Director's Desk



Greetings!

It gives me immense pleasure to present the Annual Report for the year 2025–2026.

The year has been marked by both notable achievements and significant challenges. I am proud to share that one of our senior faculty members, Prof. Vinotsole Khamo, was honoured with the highest scientific award in the State in recognition of her outstanding contributions to medical science. Additionally, Dr. Visesto Mor was also awarded a prestigious research grant under the Nagaland Science Mission.

I am also glad to inform that we have been awarded a collaborative project from the Department of Biotechnology, Ministry of Science & Technology, under which a good number of Research Scientists and scholars have been recruited recently. However, the challenge has been providing laboratory space and space for equipments.

As with any organisation, obtaining research grants and judicious utilization of available resources remain an ongoing challenge. Nevertheless, we remain steadfast in our commitment to conduct high quality research while continuing our outreach and service to the community.

I sincerely appreciate the dedication, hard work, and perseverance of the entire NIST team. Their collective efforts continue to drive the Institute forward, and I am confident that together we will achieve even greater milestones in the years ahead.

Sincerely,

(Dr. Zavei Hiese)

Director



AIMS & OBJECTIVES

- To promote development of science and technology in all its aspects; and to work for the most effective use of scientific research and methods for the upliftment and welfare of society.
- To promote academic excellence and professionalism for the advancement of the people of the hills in NE region.
- To develop human resources in Science and Technology and to impart quality education and advanced knowledge by providing facilities as it may deem fit.
- To improve human health & nutrition and economy through application of scientific research and biotechnology intervention.
- To undertake research on the bio- resources of the region; for the advancement of scientific knowledge and its application for sustainable development opportunities.
- To undertake research on food & other natural resources, focus on its utilisation that could be translated for sustainable development of the region.
- To take research results from lab to field and translate them into marketable products through mentoring of entrepreneurs vis avis economic upliftment of society.
- Skill development in various scientific services.
- To develop and improve technologies required for the sustainable development of the region, particularly for the rural population.
- To undertake research in the prevalent diseases of the region.
- To collaborate with national and international bodies to achieve the above goals.
- To reach the unreached.



1. INTRODUCTION

Nagaland Institute of Science & Technology (NIST) is an institution for Science Education, Research, Innovation and Sustainable Development. Situated in one of the world's biodiversity hotspots, Nagaland possesses abundant natural resources, a favourable climate, and rich mineral reserves. However, despite its potential, the state faces challenges such as poverty, lack of industrial development, and limited technological advancements. To leverage the power of science, technology and biotechnology for the sustainable development of Nagaland and the Northeast Region (NER), the institute was established and registered under Societies Registration Act, 1860 in the year 2019 as a non- governmental, non-profit organization.

Established by a group of visionary thinkers and scientists, NIST aims to bridge scientific gaps by promoting academic excellence, human resource development and innovative translational research. Our objectives encompass a wide range of areas, including:

Promotion of Science and Technology: Advocating for the development and application of science and technology for societal welfare.

Academic Excellence: Fostering academic brilliance and professionalism, especially in the hills of the NE region.

Human Resource Development: Nurturing talent through quality education, advanced training, and skill development in scientific services.

Research and Innovation: To conduct novel and frontier expanding research on bio-resources, natural resource utilization, disease management, and technological advancements tailored for rural development.

Entrepreneurship and Economic Development: Transforming research findings into marketable products that will translate to boosting local economy entrepreneurial sustainability especially for the rural areas.

Collaboration and Outreach: Collaborating with national and international organizations, institutions, and governments to achieve our goals and reach the underserved communities.

At NIST, we believe in empowering the people of Northeast by unlocking the potential of the natural resources, fostering innovation, and creating sustainable solutions for the challenges faced by the region. Through dedicated efforts, we aim to be a hub of scientific excellence, technological innovation, and sustainable economic prosperity.



2. RESEARCH

2.1. Ethnopharmacology and Bioresource Research

Nestled in the North-eastern part of India, Nagaland boasts a rich tapestry of culture and tradition, including its unique practices in traditional medicine. The state is home to diverse indigenous tribes, each with its own distinct healing practices.

Traditional medicine in Nagaland is deeply ingrained in the customs of indigenous communities. Herbal remedies, rituals, and spiritual healing are pivotal in their healthcare systems. Knowledge of medicinal plants is often transmitted orally within families, contributing to the preservation of this valuable heritage.

One significant aspect of traditional medicine in Nagaland is the use of medical plants. The state's rich biodiversity offers a wide array of plants with therapeutic properties, utilized for treating various ailments.

Recognizing the importance of systematically documenting and scientifically validating the traditional knowledge, the Nagaland Institute of Science and Technology (NIST) has established a specialized branch study. This study aims to collect comprehensive data on traditional medicine practices prevalent in Nagaland. It incorporates scientific methodologies to analyse the efficacy and safety of traditional remedies. This includes pharmacological studies, chemical analyses, and clinical trials to validate the therapeutic properties of indigenous plants and remedies.

By bridging the gap between traditional knowledge and modern scientific research, the institute aims to elevate the status of traditional healing practices into mainstream healthcare, fostering a deeper understanding and appreciation of Nagaland's cultural heritage and biodiversity.

The systematic documentation and validation of traditional medicine practices in Nagaland hold promise for improving healthcare outcomes and promoting sustainable practices in the state's healthcare landscape.

NIST has initiated documentation of traditional medical practices. For validation of some selected medicinal plants, a wet laboratory has been set up during this year and some equipment's for solvent extraction has been procured and installed. For in-vivo and in-vitro studies, NIST has tied up with Sphaera Pharma Ltd, Manesar, Haryana.



a. Exploring Bioresources of Nagaland

This project was recently sanctioned by DBT, Ministry of Science & Technology, GoI focusing on the exploration, documentation, and scientific evaluation of Nagaland's rich bioresources by integrating traditional knowledge with modern biotechnological research. Implemented through a collaborative effort between the Nagaland Institute of Science & Technology, the Institute of Bioresources and Sustainable Development, Imphal and the Nagaland Science & Technology Council, Kohima. The initiative aims to promote the sustainable utilization and conservation of the state's biological resources.

The project has initiated activities aimed at exploring and documenting the rich bioresources of Nagaland, with a focus on medicinal plants, edible bioresources, microbial diversity, and other biologically important resources of the region. Initial efforts have included the establishment of laboratory facilities, recruitment of research personnel, field surveys, and engagement with local communities and traditional knowledge holders. These activities are expected to provide a foundation for future research, capacity building, and the scientific evaluation of Nagaland's biological resources.

The initiative continues to serve as a platform for advancing bioresource-based research in Nagaland, with the long-term goal of generating scientific knowledge that supports conservation, sustainable development, and future biotechnological application.

b. Integrative Biodiversity Assessment of Freshwater Decapods in Nagaland: Taxonomy, Conservation, Nutraceutical Perspectives and Community Utilization

This project focuses on the study of freshwater decapods in Nagaland, with emphasis on biodiversity documentation, taxonomy, conservation, nutraceutical potential, and their role in local communities. By combining conventional taxonomic approaches with modern molecular techniques, the study seeks to improve understanding of the diversity and ecological significance of freshwater aquatic resources in the region.

Field surveys and specimen collection were conducted across various districts of Nagaland to document freshwater decapod diversity. Research activities included species identification, molecular characterization, and assessment of their ecological and potential nutritional value. The findings have contributed to a better understanding of the distribution and conservation status of aquatic biodiversity in the state.

The initiative is expected to generate valuable scientific information for biodiversity conservation, sustainable resource management, and future research on the nutritional and economic potential of freshwater aquatic species in Nagaland.



2.2. Health Research

The Healthcare Laboratory and Research Centre (HLRC), Nagaland Institute of Science and Technology (NIST), is actively engaged in a diverse portfolio of health research projects addressing priority health issues relevant to Nagaland and the North-East region. These projects encompass cancer research, infectious diseases, molecular epidemiology, artificial intelligence-based diagnostics, public health interventions, and translational biomedical research. Supported by national funding agencies and undertaken in collaboration with leading research institutions across the country, the projects aim to generate scientific evidence, strengthen research capacity, and develop innovative solutions for disease prevention, diagnosis, and treatment. Through laboratory investigations, field-based studies, community engagement, and interdisciplinary collaborations, HLRC continues to contribute towards advancing healthcare research and improving public health outcomes across the region.

a. A Comprehensive Study of Upper Gastrointestinal (Esophageal & Stomach) & Nasopharyngeal Cancers in North-East India

This collaborative research project with ICMR-RMRC, NE, Dibrugarh aims to improve understanding of upper gastrointestinal and nasopharyngeal cancers in North-East India by investigating the factors associated with their development and progression. The study focuses on the interplay between lifestyle, dietary practices, genetic influences, and infectious agents to generate evidence that may support improved cancer prevention, diagnosis, and management strategies in the region.

Research activities were carried out through coordinated efforts involving healthcare institutions, diagnostic centres, and research laboratories across North-East India. The project involved participant recruitment, clinical documentation, biological sample collection, and laboratory-based investigations to support the study objectives. Efforts were also directed towards strengthening research infrastructure, standardizing laboratory procedures, and enhancing collaborative networks for cancer research.

The study is expected to contribute valuable insights into the epidemiology and underlying factors associated with cancer in the region, supporting future research initiatives and informing strategies for early detection, prevention, and improved public health outcomes.



b. Artificial Intelligence-based (AI) tool for detection of Breast & Oral Cancer

This collaborative multicentre project, carried out in collaboration with the ICMR–National Institute of Pathology and partner institutions across the country, focuses on the development of an Artificial Intelligence (AI)-based diagnostic platform to support the early detection of breast and oral cancers using cytopathological images. The initiative aims to enhance cancer screening and diagnostic support through the integration of digital pathology and advanced analytical technologies, with relevance for improving access to healthcare in resource-limited settings.

Research activities included participant recruitment, sample collection, slide digitization, pathological evaluation, data management, and coordination with collaborating institutions across the country. The project contributed to the generation of standardized datasets required for the development and validation of AI-assisted diagnostic tools for cancer screening and early detection.

The study has strengthened collaborative cancer research efforts and advanced the application of digital health technologies in oncology. The outcomes of the project are expected to support the development of innovative diagnostic solutions that can improve early cancer detection and contribute to better healthcare delivery.

The project has been completed and Manuscript is currently under communication.

c. Situational Analysis of Cancer Care Services in India

This project is part of a nationwide initiative led by the Indian Council of Medical Research to assess the status of cancer care services across India and support the development of evidence-based strategies for strengthening cancer prevention, diagnosis, treatment, and care. The study seeks to identify gaps in healthcare infrastructure, service availability, and resource distribution in order to inform future policy and programmatic interventions.

The Nagaland Institute of Science and Technology conducted a comprehensive assessment of cancer care services across healthcare facilities in Nagaland. The study involved the systematic collection and evaluation of information related to healthcare infrastructure, service delivery, and the availability of cancer care resources. The project was implemented in collaboration with national research partners as part of a coordinated effort to understand the current landscape of cancer care in the country.

The findings of the study are expected to contribute to the development of recommendations for strengthening cancer care services and improving equitable access to cancer-related healthcare. The project will provide valuable evidence to support future planning, policy formulation, and healthcare system improvements at both state and national levels.

The project has been completed and Manuscript is currently under communication.



d. Genome sequencing analysis of Epstein-Barr Virus isolated from EBV-associated cancers (Nasopharyngeal carcinoma, Gastric cancer, Oesophageal carcinoma, Hodgkin's Lymphoma and Non-Hodgkin's Lymphoma)

This project focuses on understanding the role of Epstein-Barr Virus (EBV) in cancers that are prevalent in the region. Through the application of advanced genomic and bioinformatics approaches, the study seeks to investigate the genetic characteristics of EBV and its association with the development of various cancers. The research aims to improve scientific understanding of virus-related cancers and support the development of strategies for cancer prevention, early detection, and personalized healthcare.

Project activities included participant enrolment, clinical sample collection, and the development of laboratory workflows for molecular and genomic investigations. The study aims to generate baseline data on Epstein-Barr virus (EBV) diversity and explore its potential relevance to cancer biology in the local population.

The project is expected to contribute valuable knowledge on the relationship between viral infections and cancer, while strengthening genomic research capacity in Nagaland. The findings may support future advances in cancer risk assessment, disease monitoring, and precision medicine initiatives in the region.

e. Enhancing cervical cancer screening: A deep learning approach with a comprehensive cytology image dataset

This collaborative project with ICMR-National Institute for Research in Digital Health & Data Science, New Delhi, aims to strengthen cervical cancer prevention and early detection through a combination of community outreach, screening services, and research-driven innovations. The initiative focuses on increasing awareness of cervical cancer and Human Papillomavirus (HPV), promoting regular screening, and generating resources that support the development of advanced diagnostic tools for cervical cancer detection.

Community-based health camps were conducted to provide cervical cancer awareness, health education, and screening services for women. The project facilitated engagement with local communities, encouraged participation in preventive healthcare, and supported the collection and processing of cervical cytology samples for research purposes. These activities contributed to both public health awareness and the development of research resources for future diagnostic applications.

The project is expected to contribute to improved cervical cancer screening and early detection strategies while supporting the development of innovative, technology-enabled diagnostic approaches. Through the integration of community health initiatives and research, the study seeks to enhance women's health outcomes and strengthen cervical cancer prevention efforts in the region.



f. Study on Persistence of High-Risk HPV Infection and it's Association with Specific Epigenetic Markers and HLA-Class-II Gene Polymorphism Among Adult Females from Northeast India

This collaborating project with ICMR-RMRC, Dibrugarh, aimed to investigate the factors associated with the persistence of high-risk Human Papillomavirus (HPV) infection among women in North-East India and to explore their potential relationship with cervical cancer risk. The study combined community-based screening, public health outreach, and molecular research to improve understanding of HPV infection and its role in cervical cancer development.

During the project period, awareness programmes, cervical cancer screening activities, participant follow-up, and laboratory-based analyses were conducted to support the study objectives. The research focused on understanding the biological and genetic factors that may influence HPV persistence, while also promoting awareness of cervical cancer prevention and the importance of early detection among women in the region.

The project has contributed to strengthening research on HPV-associated diseases and cervical cancer in North-East India. The knowledge generated through this study is expected to support future research, inform preventive health strategies, and contribute to efforts aimed at reducing the burden of cervical cancer through improved screening and early intervention.

The project has been successfully completed achieving all the objectives and has published one paper.

g. Development of AI image binary classification algorithm and validation of Bioimpedance device to classify oral lesions as benign or malignant based on findings of biopsy: Multicentric study in seven states of Northeast India

This multicentric research project in collaboration with ICMR-National Institute of Digital Health Research (NIDHR), aims to develop and validate innovative technology-based approaches for the early detection of oral cancer. By combining artificial intelligence, digital imaging, and bioimpedance technology, the study seeks to improve the identification and classification of oral lesions, supporting timely diagnosis and better clinical decision-making. The project is being implemented through a collaborative network of healthcare and research institutions across Northeast India.

Research activities included participant recruitment, clinical evaluation, imaging and bioimpedance assessments, data collection, and community-based awareness initiatives. The project also involved the collection of information required to evaluate the performance and feasibility of AI-assisted diagnostic tools for oral cancer screening. Standardized study procedures were implemented across participating centres to ensure consistency and quality in data generation and analysis.

The project is expected to contribute to the development of accessible, non-invasive, and technology-enabled screening solutions for oral cancer. The findings may support improved early detection strategies and strengthen cancer screening services, particularly in underserved and resource-limited communities across the region.



h. Genetic Diversity and Epidemiological Insights of *Mycobacterium tuberculosis* in Nagaland, India

This project focuses on understanding the genetic diversity and epidemiological characteristics of *Mycobacterium tuberculosis* in Nagaland. Through the application of molecular and genomic approaches, the study seeks to improve knowledge of tuberculosis transmission, disease patterns, and factors associated with treatment outcomes. The project aims to generate scientific evidence that can support tuberculosis control and public health initiatives in the region.

Activities undertaken under the project included establishing laboratory infrastructure, developing study protocols, standardizing laboratory procedures, and initiating sample collection and processing. The project is being implemented through collaboration between research institutions and healthcare partners, creating a platform for advanced tuberculosis research in the state.

The study is expected to contribute to a better understanding of tuberculosis epidemiology in Nagaland and strengthen regional capacity for molecular disease surveillance. The knowledge generated through this research may support future strategies for disease monitoring, prevention, and improved public health interventions.



3. TECHNOLOGY INNOVATION

a. Development of Rapid Test Kit for Paragonimiasis Detection

This project aims to develop a rapid diagnostic test for the early and accurate detection of paragonimiasis, a neglected parasitic disease that remains a public health concern in parts of Northeast India. The initiative seeks to improve disease diagnosis and management by providing a simple, reliable, and accessible testing tool that can be used in a variety of healthcare settings, particularly in resource-limited areas.

Building on years of research and field experience, the project focuses on developing a user-friendly diagnostic platform that can support timely identification of infections and strengthen disease surveillance efforts. During the reporting period, activities included project planning, protocol development, laboratory preparations, and the establishment of frameworks required for diagnostic test development and validation.

The project has the potential to significantly improve the detection and management of paragonimiasis while reducing diagnostic challenges associated with similar clinical conditions. The successful development of a rapid test kit would support healthcare providers, strengthen public health programmes, and contribute to improved disease control efforts in endemic regions.

b. Establishment of *Galleria mellonella* Facility for Pathogenicity and Drug Discovery Studies in Nagaland

This project aims to establish *Galleria mellonella* as a laboratory model for studying infectious diseases and evaluating the antimicrobial potential of traditional herbal and insect-derived products from Nagaland. By integrating microbiology, molecular biology, and traditional knowledge systems, the project seeks to support the discovery of novel therapeutic agents and strengthen biomedical research capacity in the state.

During the reporting period, the necessary laboratory facilities and experimental systems were established to support infection modelling and antimicrobial research. Activities included the development of research protocols, capacity building, and the initiation of studies related to pathogen-host interactions and the evaluation of natural products with potential therapeutic applications.

The project represents an important step towards developing research infrastructure for infectious disease studies and drug discovery in Nagaland. The facility is expected to support future investigations into antimicrobial resistance, validation of traditional remedies, and the identification of bioactive compounds with potential healthcare applications.



4. COMMUNITY OUTREACH PROGRAMMES

a. Health Awareness Camp

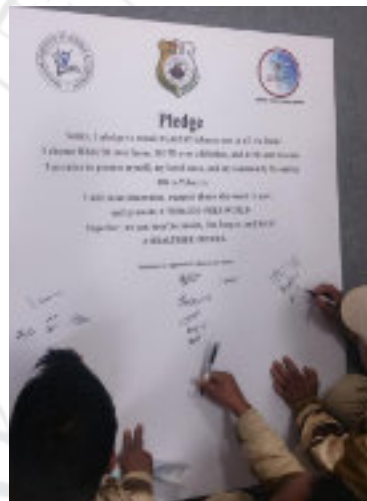
On 22nd August 2025, a Health Awareness Camp was conducted at Chozuba Village, Phek, aimed at promoting community health and preventive care practices. The programme focused on educating villagers about common health issues, early detection of diseases, and the importance of maintaining a healthy lifestyle. Health professionals engaged with the participants through interactive sessions, encouraging them to adopt regular health check-ups and improve awareness about accessible healthcare services in the region



b. Oral Cancer Awareness Camp

Oral Cancer Awareness Camp was conducted in collaboration with organisations and communities. The programme aimed to sensitize participants on the risks, early signs, and prevention of oral cancer, with a strong emphasis on the harmful effects of tobacco use. Awareness talks were also held on early detection and the importance of timely medical consultation. The initiative reinforced the collective commitment towards building a tobacco-free and cancer-aware community.

During the session, the participants took pledge to quit tobacco and actively encourage others to refrain from using it.



Health Camps Conducted

Sl. No.	Date	Program	Location
1	22/08/2025	Health Awareness Camp	Chozuba Village, Phek
2	24/08/2025	Health Awareness Camp	CBC Kohima
3	28/08/2025	Oral Health Awareness Camp	CBC Kohima
4	09/02/2026	Oral Cancer Awareness Camp	Nagaland Police, Pfutsero
5	14/03/2026	Oral Cancer Awareness Camp	Pholami Village, Phek



c. World No Tobacco Day

The Population Based Cancer Registry (PBCR), Nagaland Institute of Science & Technology (NIST) observed World No Tobacco Day on 31st May 2025 in collaboration with Coraggio School. The programme aimed to create awareness among students about the harmful effects of tobacco use and the importance of leading a healthy lifestyle. As part of the observance, the students actively participated in the programme and took a pledge to stay away from tobacco and promote a tobacco-free society.



5. ACTIVITIES & PROGRAMMES

a. Observation of Cancer Survivor Day

The institute participated in the National Cancer Survivors Day held on 7th June 2025 at Putuonuo Hospital, Kohima. The event was organized to honour cancer survivors, raise awareness about the challenges they face, and inspire hope among patients currently undergoing treatment. The observance of National Cancer Survivors Day brought together survivors, caregivers, healthcare professionals, and members of the public in a spirit of solidarity and celebration. During the program, patients shared their testimonies from diagnosis and treatment to recovery, offering messages of hope, strength, resilience, and determination.



b. National One Health Conclave

Participated in the National One Health Conclave was held from 19th to 22nd November, 2025 at Bharat Mandapam, New Delhi. The event brought together experts, policymakers, and stakeholders from various sectors to discuss the integrated approach of One Health, focusing on the interconnectedness of human, animal, and environmental health. The conclave served as a platform for knowledge sharing, collaboration, and strengthening strategies to address emerging and re-emerging health challenges at the national level.



c. World Cancer Day

On 4th February 2026, World Cancer Day was observed in collaboration with St. Joseph College (Autonomous), Jakhama. The programme focused on raising awareness about cancer prevention, early detection, and the importance of timely medical care. As part of the observance, an oral health examination was also conducted for over 110 students, helping to promote awareness on oral hygiene and its link to overall health. The event encouraged students to adopt healthier lifestyle practices and reinforced the importance of regular health check-ups and early screening.



d. Population Based Cancer Registries Meeting at ICMR-NINE, Bangalore

Attended the meeting of the Population Based Cancer Registries (PBCRs) under the National Cancer Registry Programme (NCRP) held on 17th–18th February 2026 at ICMR-National Institute of Epidemiology and Informatics (ICMR-NINE), Bangalore. The meeting focused on strengthening the quality, completeness, and timeliness of PBCR data through improved follow-up mechanisms, mortality data collection, and rigorous quality control measures.

Key discussions included enhancing research and publication activities using registry data, identifying unique cancer patterns for further investigation, improving passive data collection through collaboration with Hospital Based Cancer Registries (HBCRs), and increasing public and professional engagement through institutional websites and social media platforms. Emphasis was also placed on collaborative research within the NCRP network, dissemination of state cancer factsheets, and strengthening partnerships with NGOs and state authorities to support cancer control activities and improve registry performance.



6. CAPACITY BUILDING

a. Research Methodology Workshop

The Research Methodology Workshop for North East Zone MRUs was organised by the MRU, Healthcare Laboratory and Research Centre, Nagaland Institute of Science & Technology (NIST), from 16th to 18th July 2025 (classroom sessions) and on 28th July to 12th August 2025 (online sessions). The workshop was conducted in collaboration with St. John's Medical College and Research Institute, Bangalore (ICMR-CCoE) under the directive of the Department of Health Research (DHR), New Delhi at MRU-HLRC, NIST Kohima

Delegates from four MRUs took part in the program. In total, there were 39 participants. The resource team included experts from Department of Health Research, Ministry of Health & Family Welfare, GoI, ICMR, and St. John Medical College Hospital, Bangalore.

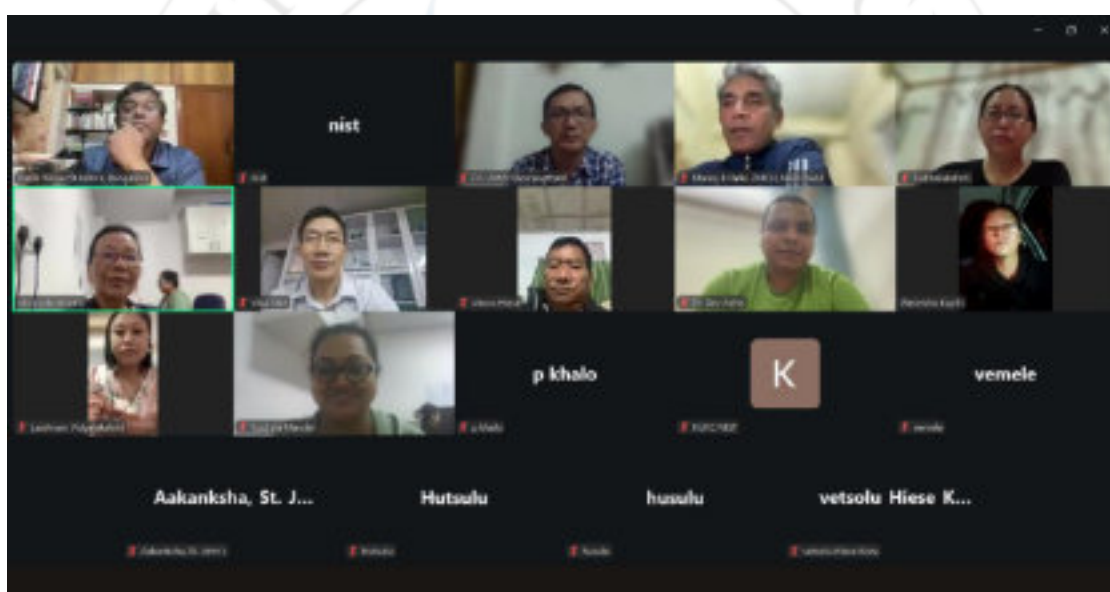
Participating institutions included Regional Institute of Medical Sciences (RIMS), Imphal; Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Imphal; Zoram Medical College (ZMC), Mizoram; Christian Institute of Health Sciences and Research (CIHSR), Dimapur; Nagaland Institute of Medical Sciences and Research (NIMSR), Kohima; Kohima Science College, Jotsoma; ICMR–Model Rural Health Research Unit (MRHRU), Nagaland; Naga Hospital Kohima; District Hospital, Dimapur; and District Hospital, Phek.



b. Online Research Methodology Workshop

Following the completion of the classroom sessions of the Research Methodology Workshop for North East Zone MRUs, the online sessions commenced on 28th July 2025 and continued till 12th August 2025, comprising a total of 7 sessions. The workshop was organised by the MRU, Healthcare Laboratory and Research Centre, Nagaland Institute of Science & Technology (HLRC, NIST), Kohima, in collaboration with St. John's Medical College and Research Institute (ICMR-CCoE) under the directive of the Department of Health Research (DHR), New Delhi.

The online component included 15 participants from RIMS Imphal, JNIMS Imphal, and Zoram Medical College, Mizoram. The sessions were designed to further strengthen participants' understanding of research methodology, data analysis, and scientific writing, building on the foundation laid during the classroom training.



c. Research Masterclass

The Research Masterclass was initiated by the Department of Health Research (DHR) to strengthen the research ecosystem in the medical colleges and research institutes across the country. The Research Grand Rounds was organised as monthly webinars entitled 'Research Masterclass'. The speakers for these Research Masterclass were eminent research scientists in the country.

The objectives of the Research Grand Rounds are as follows:

- To deliberate on research methodologies, analytical tools and emerging scientific approaches

- To strengthen the methodological understanding amongst researchers needed to implement different kinds of research.

- To foster collaboration and connectivity across research institutions.

The Research Masterclass started on the 30th of May 2025 and is an ongoing activity conducted once every month.



d. Training and Internship Programmes

Nagaland Institute of Science & Technology conducts two internship programmes annually, the **Summer Internship Programme** and the **Winter Internship Programme**, with the objective of providing students and young professionals with practical exposure, skill-based training, and hands-on learning experiences across scientific, technical, and professional disciplines.

The internship programmes are designed to bridge academic learning with real-world applications by offering structured training under experienced faculty members and industry-oriented mentors. Participants are exposed to laboratory practices, research methodologies, technical operations, communication skills, and professional development activities relevant to their respective fields.

The institute offers internship opportunities in the following courses and disciplines:

Science Stream

1. Biotechnology Skills – B.Sc
2. Advanced Biotechnology Skills – M.Sc
3. Clinical Laboratory Technology – B.Sc / M.Sc

General Stream

1. Business Management
2. Human Resource Management
3. Communication & Soft Skills
4. Solar Power Concepts & Installation
5. Modern Construction Technology

Through these internship programmes, the institute continues to promote innovation, capacity building, and skill development among students while preparing them for higher education, research, entrepreneurship, and employment opportunities in diverse sectors.



e. Lab Visit by Kohima Science College, Jotsoma

On 18th September 2025, 19 students from the Kohima Science College, Jotsoma visited the HLRC laboratory as part of an educational exposure programme. During the visit, the students were introduced to various laboratory procedures, scientific equipment, and diagnostic techniques related to healthcare and research. The visit aimed to provide practical learning experience and enhance the students' understanding of laboratory science and its role in research and diagnosis.



f. Lab Visit by St. Joseph College (Autonomous), Jakhama

On 9th September 2025, 40 students from St. Joseph's College Jakhama (Autonomous) visited the HLRC laboratory for an academic exposure programme. The students interacted with laboratory professionals and were introduced to the day-to-day functioning of the lab, including sample handling, testing processes, and safety practices followed in a research environment. The visit helped the students gain a better appreciation of the contribution of laboratory science towards disease diagnosis, research, and public health awareness.



g. Workshop on Clinical Trail

Participated in a 3-days Clinical Trial Workshop, conducted at Aizawl Club, Aizawl, Mizoram from 25th to 27th November 2025 under the aegis of Indian Council of Medical Research – Department of Health Research (ICMR–DHR) in collaboration with the Indian Clinical Trial and Education Network (INTENT) Centre, Christian Medical College Vellore.

The workshop was designed to strengthen the clinical research capacity of healthcare professionals, investigators, and researchers in Northeast India. It focused on the systematic, ethical, and regulatory aspects of clinical trial design and conduct. Through interactive and hands-on sessions, participants were guided in developing actionable research protocols suitable for submission under ICMR extramural grant funding, thereby enhancing practical research skills and fostering quality clinical research output in the region.



h. Operational Training Workshop on Bioimpedance Device Use, Clinical Imaging and OSCE-Based Skills in Oral Lesion Classification

Attended the 2 days training program titled “Operational Training Workshop on Bioimpedance Device Use, Clinical Imaging and OSCE-Based Skills in Oral Lesion Classification”, under the ICMR-funded project “*Development of AI Image Binary Classification Algorithm and Validation of Bioimpedance Device to Classify Oral Lesions: A Multi-Centric Study in Seven States of Northeast India*”, scheduled on 7th and 8th January 2026.

The training program was conducted at the National Institute of Health and Family Welfare (NIHFW), Munirka, New Delhi.



i. Visit to the Institute of Bioresources and Sustainable Development (IBSD), Imphal

The official visit was undertaken for training, scientific interaction, and laboratory exposure. During the visit, attendance was made at the “Science Talks 2026” featuring presentations by Dr. Sonia Devi Henam, Prof. Adv. Ganesh S Hingmire, and Prof. Kuldip Chand Agnihotri. A visit was also conducted to the Tissue Culture Facility at the National Bioresource Park, Haraorou, Imphal East, Manipur, along with tours of various laboratories to observe experimental instrumentation and research infrastructure.

Interactions with scientists and research staff provided opportunities for meaningful discussions on ongoing research activities, methodologies, and future collaborations. Laboratory consumables required for the project were also received from the headquarters office. Overall, the visit proved highly beneficial in enhancing technical knowledge, strengthening research capacity, and supporting the effective continuation of the project work.



7. COMMITTEES UNDER NIST

a. Governing Body

The Governing Body is the highest policy-making and decision-making authority of the Nagaland Institute of Science & Technology (NIST). The Committee convenes once each year to provide strategic direction, undertake long term planning, and review the overall functioning of the institute. It oversees major academic, research, financial, and administrative matters, approves key policies, and formulates long term plans for institutional growth and development.

The annual meeting serves as a platform to evaluate the institute's progress, review its achievements and challenges, establish strategic priorities, approve future plans, and make critical decisions that ensure the professional, transparent, accountable, and efficient governance of the institute in accordance with its vision, mission, and statutory objectives.



b. Local Research Advisory Committee (LRAC)

Nagaland Institute of Science & Technology has constituted a Local Research Advisory Committee (LRAC) to guide, review, and strengthen the institute's research activities and academic output. The committee plays a key role in ensuring that all research initiatives undertaken by the institute are relevant, scientifically sound, and aligned with institutional objectives.

The LRAC is responsible for evaluating research proposals, monitoring ongoing projects, and providing expert suggestions for improvement in methodology, implementation, and outcomes. It also supports the development of new research areas, interdisciplinary collaboration, and innovative studies within the institute.

In addition, the committee ensures quality assurance in research work, promotes ethical standards, and encourages the publication and dissemination of scientific findings. The LRAC meets twice a year to review research progress, provide constructive feedback, and guide researchers and faculty members in improving the quality of their work.

Through the functioning of the Local Research Advisory Committee, the institute continues to strengthen its research culture and enhance its contribution to scientific advancement and knowledge generation.



c. Institutional Ethical Committee (IEC)

Nagaland Institute of Science & Technology has an Institutional Ethical Committee (IEC) to ensure that all research activities conducted within the institute adhere to established ethical standards and responsible research practices.

The IEC is responsible for reviewing and approving research proposals involving human participants, biological samples, or sensitive data to ensure compliance with ethical principles such as informed consent, confidentiality, risk minimization, and participant safety. The committee also evaluates ongoing studies and provides guidance to maintain ethical integrity throughout the research process.

In addition, the IEC promotes awareness on ethical research conduct among students, faculty, and researchers, and ensures that all projects follow proper documentation and regulatory requirements. Regular meetings are conducted to review submissions and monitor adherence to approved protocols.

Through the functioning of the Institutional Ethical Committee, the institute upholds transparency, accountability, and the highest standards of ethical responsibility in all its research and academic activities.



d. Executive Committee (EC)

Nagaland Institute of Science & Technology has an Executive Committee constituted to oversee the overall academic, administrative, and research functioning of the institute. The committee ensures effective planning, coordination, and implementation of institutional activities in line with established governance norms and applicable guidelines for Medical Research Units under the Department of Health Research (DHR).

The Executive Committee is responsible for reviewing institutional progress, approving key academic and research initiatives, monitoring resource utilization, and ensuring compliance with quality and ethical standards. It also provides strategic direction for capacity building, infrastructure development, and strengthening of research and training programmes.

The committee meets once every quarter, to ensure regular review, timely decision-making, and smooth implementation of institutional objectives.



8. ACHIEVEMENTS

a. Indigenous Diagnostic Innovation Milestone

An Indigenous **Semi Rapid ELISA kit for Detection of Paragonimiasis** has been successfully filed for patent protection. A Provisional Patent Certificate has been received under Indian Patent Provisional **Application No. 202531085766**, filed on 9th September 2025 (AIPC Ref: IP1916)

b. Nagaland Science & Technology Award 2026

The Nagaland Science & Technology Award, recognized as the highest honour conferred by the Government of Nagaland in the field of Science & Technology, was presented in recognition of outstanding achievements and contributions to scientific and technological advancement.

Two distinguished scientists from the Nagaland Institute of Science & Technology (NIST) were honoured during the award ceremony.

Dr. Vinotsole Khamo received the Award for Outstanding Achievement in Science & Technology, 2025, in recognition of her significant contributions to scientific research and innovation.

Dr. Visaseto Mor was awarded the Research Grant for Indigenous Nagas of Nagaland, 2025, for his project titled “Establishment of *Galleria mellonella* Facility for Pathogenicity and Drug Discovery Studies.”

c. Recognition for Research Performance

In 2025, the Medical Research Unit (MRU), Healthcare Laboratory and Research Centre (HLRC), Nagaland Institute of Science and Technology (NIST), secured a 70% performance score in the Medical Colleges Research Connect Performance Evaluation conducted by the Department of Health Research (DHR), Ministry of Health and Family Welfare, Government of India. The score positioned the unit among the leading Medical Research Units in the North-East Region, recognizing its contributions to quality research, research capacity building, scientific collaboration, and the generation of evidence to address regional health priorities. This accomplishment underscores the institute's growing role as a centre of excellence for health research and innovation in Nagaland.

d. Development of a Comprehensive Cytopathology Dataset for AI-Based Breast and Oral Cancer Screening and Early Detection

The institute have successfully contributed to the creation of a comprehensive cytopathology dataset comprising breast and oral cancer cases and healthy controls for the development and validation of Artificial Intelligence (AI)-based tools for breast and oral cancer screening and early detection. The AI tool is being developed by ICMR–National Institute of Pathology. The dataset will support the creation of digital diagnostic solutions aimed at improving cancer screening services, particularly in resource-limited healthcare setting.



b. Assessment of Cancer Care Services Across Nagaland

Successfully completed a comprehensive statewide assessment of cancer care services across Nagaland, covering 120 Primary Health Centres (PHCs), 44 Community Health Centres (CHCs), 8 District Hospitals (DHs), and 4 tertiary hospitals. The study generated critical evidence on the availability, distribution, and gaps in cancer care infrastructure and services, providing a valuable baseline for strengthening cancer care delivery and informing future policy and programmatic interventions at both the State and National levels.



Dr. Vinotsole Khamo received the Award for Outstanding Achievement in Medical Science, 2025.



Dr. Visaseto Mor received the Research Grant for Indigenous Nagas of Nagaland, 2025 for the project titled "Establishment of *Galleria mellonella* Facility for Pathogenicity and Drug Discovery Studies."



9. COLLABORATING INSTITUTES

Sl. INSTITUTES

1. Kohima Science College Jotsoma, Kohima, Nagaland
2. St. Josph College (Autonomous) Jakhama, Kohima, Nagaland
3. Nagaland Science and Technology Council (NASTEC), Kohima, Nagaland
4. Department of Biotechnology, Nagaland University, Nagaland
5. Department of Health Research, Ministry of Health & Family Research, GoI, New Delhi
6. BRIC Institute of Bioresources and Sustainable Development (IBSD), Imphal, Manipur
7. Indian Council of Medical Research – National Institute of NCD Epidemiology (ICMR-NINE), Bengaluru, Karnataka
8. ICMR-National Institute for Research in Digital Health and Data Science (NIRDHDS), New Delhi
9. Biotechnology Industry Research Assistance Council (BIRAC)
10. North Eastern Hill University (NEHU), Shillong
11. North East Christian University (NECU), Dimapur, Nagaland



10. LIST OF PUBLICATIONS

- a. Dutta M, Manguri C, Lalrothuama, Taye M, Gohain M, Gogoi G, Das A, Majumdar T, Baidya JL, Apum B, Karlo B, Singh KP, Sharma N, Lyndoh CJ, Kharutso NAL, **Khamo V**, Grace P, Sarmah N, Gogoi S, Siddique AI, Jakharia A, Kaur H, Borkakoty B. Promoter methylation of APC, P16, and WT1 genes among high-risk HPV infected women of North-Eastern states of India. *Indian J Med Microbiol.* 2026;62:101118. doi:10.1016/j.ijmmb.2026.101118. PMID: 42067137. **Impact Factor: 1.3**
- b. Rai, Kirti, Ridi Khatri, Amrutha Jose, Deepak Upadhaya, Sukham Rishikanta Singh, Kyntiewdor Lyting, Husulu, Harshada Konkar, Prashant Tapase, Milind Nadkar, Anjali Rajadhyaksha, Pooja Jaiswal, Swapnal Pawaskar, Durga Chougule, Ajanta Sharma, Lahari Saikia, Chiranjita Phukan, Anuradha Deori, Leena Talukdar, Supriya Laifangbam, Yengkhom Rameshwor Singh, W Valarie Lyngdoh, Bhupen Barman, Monaliza Lyngdoh, Biswajit Dey, Sheryl Lanong, Cleopatra Shadap, Banraprbor Wankhar, **V Khamo**, Hutsulu, C Longe Peter, Neimenuo Kuotsu, Neikhrietsonuo Kesiezie, Vijay Padwal, Manisha Madkaikar, Vandana Pradhan, Regional variation in serum ficolin levels and their association with disease activity and clinical manifestations in systemic lupus erythematosus (SLE) patients from India, *Immunologic Research*, Volume 74, Issue 1, 2026, Pages 1–12, ISSN ___, <https://doi.org/10.1007/s12026-025-09735-1> **Impact Factor: 3.1**
- c. Anita Nath, Vaitheeswaran Kulothungan, Thilagavathi Ramamoorthy, Vinay Urs K S, Debabrata Barmon, Jaganath Sharma, Anita Bhutia, Tseten Bhutia, Madhubala Devi, Sushma Khurajam, Kaling Jerang, Ravi Kannan, Gautam Majumdar, Projnan Saikia, Adity Sharma, Shah Alam Sheikh, Sopai Tawsik, **Vinotsole Khamo**, W.B. Langstieh, Eric Zomawia, Prashant Mathur, Rural-urban and sex-specific disparities in the prevalence of modifiable and metabolic risk factors associated with NCDs including cancer in Northeast India, *Clinical Epidemiology and Global Health*, Volume 35, 2025, 102141, ISSN 2213-3984, <https://doi.org/10.1016/j.cegh.2025.102141>. **Impact Factor: 1.7**
- d. National Cancer Registry Programme Investigator Group; Mathur P, Sathishkumar K, Das P, Santhappan S, Sankarapillai J, Nath A, Baburao Vishwakarma M, Swaminathan R, Pitchaimuthu S, Deo SVS, Manoharan N, Deshmane V, Koyande S, Gupta S, Budukh A, Thejaswini B, Vijay CR, Mathew A, George PS, Balasubramanian S, Sunilkumar S, Pandya S, Shah A, Chakrabarti J, Jatua D, Nair RA, Najmi AM, Wani SQ, Gundeti S, Majumdar G, Debbarma S, Thaliath BP, Ghosh R, Mahantshetty U, Fernandes D, Pradhan S, Khanna D, Barmon D, Rahman T, Malik R, Shrivastava A, Langstieh W, Jagtap V, Zomawia E, Chhakchhuak L, Khurajam S, Laishram RS, Panse N, Dulange V, Sheikh SA, Dey AK, Gulia A, Pahwa V, Asthana S, Singh S, Bodal VK, Kaur M, Gupta A, Thakur JS, Dikshit R, Kannan RR, Tapkire R, Patil S, Sarade M, Sharma A, Ahmed Z, Chaturvedi P, Singh R, Sherpa AT, Pradhan PD, Lokhande D, Saoba S, **Khamo V**, Hiese KS, Tawsik S, Hage N, Jerang K. Cancer Incidence and Mortality Across 43 Cancer Registries in India. *JAMA Netw Open.* 2025 Aug 1;8(8):e2527805. doi:10.1001/jamanetworkopen.2025.27805. PMID: 40833697; PMCID: PMC12368690. **Impact Factor 9.7**



- e. Anita Nath, Prashant Mathur, Kondalli Lakshminarayana Sudarshan, Ramandeep Arora; Rachna Seth, Sanjiv Kumar, Girish Chinnaswamy, Atul Budukh, Varinder Singh, T Priya Kumari, Raja Paramjeet Singh Banipal, Vijay Kumar Bodal, A R Arun Kumar, C R Vijay, T Avinash, C Ramesh, Sadashivudu Gundeti, Shikha Malik, Narendra Kumar Chaudhary, Gautam Majumdar, Deepshikha Das, Nita Radhakrishnan, V Surya Rao, Manoj Rawal, Jeremy L Pautu, Deepak Sundriyal, Munlima Hazarika, Caleb Harris, Sunil Natha Jondhale, **Vinotsole Khamo**, Arshad Manzoor Najmi, Puneet Pareek, Ratan Konjengbam, Saroj Kumar Das Majumdar, Shashank Pandya, Anand Shah; S B Singh, Venkatraman Radhakrishnan, R Swaminathan, Chandra Mohan Kumar, Pritanjali Singh, Lokesh Tiwari, Syamsundar Mandal, Sopai Tawsik, Awadhesh Kumar Pandey, K Gunaseelan, Tseten W Bhutia. Stakeholder's Perspectives on the Barriers and Facilitators of Childhood Cancer Care in India. doi.org/10.1007/s13312-025-00098-2. **Impact Factor 1.9**
- f. Khesoh V, Thisa M, Yakovlev R, Ltu KH, **Hiese Z**, Maddela P. The relationships of closely related cossid moth species among geographically diverse with respect to Indian cossid moth (Lepidoptera: Cossidae). Uttar Pradesh J Zool. 2024;45(13):375-384. doi:10.56557/upjz/2024/v45i134165.
- g. Khesoh V, Thisa M, Ltu KH, Olsson SB, **Hiese Z**, Maddela P. Characterizing the volatile organic profile of *Chinocossus acronyctoides* (Lepidoptera: Cossidae) larvae through solid-phase micro extraction-gas chromatography-mass spectrometry (SPME-GCMS). J Appl Chem. 2024;13(3):297-303. Available from: <https://joac.info/AbstractPaper/2024/4-13-3-1A.pdf>
- h. Konyak MP, Moaakum, **Hiese Z**, Prabhu SL, Kandasamy R, Hiese V, Talijungla, Rathore HS. Efficient extraction of triterpenoid saponins from leaves of *Clematis napaulensis* DC.– an indigenous medicinal plant used in treatment of rheumatoid arthritis. Int Res J Pharm. 2024;15(5):11-20. doi:10.56802/2230-8407.1304102.



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St. Joseph's College (Autonomous), Jakhama partners with Nagaland Institute of Science & Technology (NIST) to foster academic and research collaboration



Jakhama, 25th November 2025- St Joseph's College Autonomous, Jakhama has signed a Memorandum of Understanding (MoU) with the Nagaland Institute of Science & Technology (NIST) to establish a collaborative framework aimed at enhancing academic and research activities. This partnership spans multiple departments including Physics, Chemistry, Mathematics, Zoology and History, with the goal of promoting scientific research, academic excellence and innovation.

Under this MoU, students will benefit from expanded internship and experiential learning opportunities across a wide range of professional courses facilitated by NIST under concessional fee structures. Faculty and PhD candidates will gain access to NIST's advanced research facilities to further their academic pursuits and collaborative research. Both institutions will jointly undertake research projects, aiming for high-quality publications and fostering innovation through patent generation and intellectual property sharing.

The collaboration also includes exchange of expertise through guest lectures, workshops and capacity-building programs to support professional development of faculty and students. This agreement symbolizes a commitment to mutual growth and advancing the educational landscape of the region through shared resources and knowledge.

The partnership is designed as a long-term collaboration with provisions for periodic review and mutual amendments.

For further information, please contact: (Mr. Duangalang Kamei, 9786834652, duangalang@gmail.com)



NEWS

UPDATE

Nagaland Marks National Science Day
with First State-Level Science & Technology Awards



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NAGALAND INSTITUTE OF SCIENCE & TECHNOLOGY
Annual Report (2025 - 2026)



+91 370 7964573



nistleries@gmail.com



nistnagaland.org



NH-29, Lerie Colony, Kohima, Nagaland

