North East Centre for Technology Application and Reach

(An Autonomous body under Department of Science and Technology, Govt. of India)

"Delivering Technologies, Serving People"

ANNUAL REPORT 2022-2023

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OUR VISION

To be the leading Centre to foster, nurture and ensure the delivery, sustenance and use of technology applications for public and social good; and to reach and expand the benefits of technology among people, communities, institutions and governments for equitable and inclusive social and economic development of the North Eastern Region of our country.

OUR MISSION

NECTAR is conceived as a collaborative Centre of excellence to resolve the last mile problem in the delivery, induction, management, use and extension of technology applications which serve public good and promote social and economic development of the North Eastern region in the broadest possible terms. The overall operational aim is to infuse, build and sustain a culture of gainful applications of technology at the ground level among users and to fill the void that persists at present in reaching to people, communities and end users technology applications that remain unavailable to them. The focus and emphasis of technology induction and extension is clearly on applications that serve public good; that create livelihoods and employment, particularly among the poor and disadvantaged communities; that promote equitable economic growth; improve productivity in all areas; promote efficient and effective use of local and natural resources; contribute to safety and a cleaner environment and are socially desirable.

The Centre is committed to mitigate and fill the vital gaps in the techno-economic interface and establish and deliver expertise and services in the following areas particularly:

- Technology solutions design for the issues and problems relevant to the North Eastern Region.
- Sourcing of the most appropriate and optimal technology application.
- Adaptation and adoption of the technology for local and effective use.
- Demonstration of the applications through pilot projects
- Skills and capacity building among users and institutions to absorb and use the applications.
- Induction of the applications and promoting entrepreneurial adoption.
- The extension and consolidation of the promoted technologies.
- Delivery, maintenance and servicing of applications by promotion of an appropriate delivery and services infrastructure.

The Centre has chosen to work in a collaborative, networked and partnership framework. The endeavor will be to build and expand partnerships with people, communities, local bodies, NGO's, research and technology institutions, knowledge creators, professionals and experts, intermediate entities of all types working towards similar aims and, most importantly, with the various organs of the State Governments. The projects, schemes, funding and support of the Centre will be channeled in accordance with this model and framework. The Centre recognizes that their clients and stakeholders are bound to them in a partnership mode.

Thus, the Centre, besides employing its own expertise and resources, will continually strive to engage and participate with a diverse and dispersed range of project partners and collaborators. The Centre will take active steps to invite and encourage the participation and contribution, both individual and institutional, of the potential and talents of the North Eastern Region.

The Centre is acutely aware that the induction and economic use of technology applications is not a technology question alone. It comprises the entire gamut of interlocked chains of production and business which begins with the raw material or a knowledge resource and reaches right to the point where the end product is used or consumed by the citizen or consumer. The centre shall undertake all activities which require technology and management inputs that serve to strengthen the economy of the North Eastern Region and create incomes and livelihoods for the poor and disadvantaged people of the Region.

FROM THE DESK OF THE

DIRECTOR GENERAL, NECTAR

I am delighted to write the forward for the Annual Report of the North East Centre for Technology Application & Reach (NECTAR) for the period April 2022 to March 2023. During the decade, our country has made very good progress in the fields of science and technology, resulting in it being counted as one of the emerging scientific contributors in the world. The recent developments in Chandrayan-3 and Aditya L1 have proven the science and technology achievement of our country in the world community. NECATR, an autonomous body under the Department of Science and Technology (DST), Ministry of Science and Technology, Govt. of India, has been extensively working on technology dissemination activities in entire North East for the societal development by fulfilling its main mandate. One of its mandates is to produce quality skilled resources on advanced technology to cater to the actual requirements of the NER and the country. The report herein highlights the achievements and progress made from 2022 to 2023.

In accordance with NECTAR's devotion in originating a new template in Technology Delivery that reaches the most remote regions of North East, the fiscal year 2022-23 was marked by various activities to satisfy the same. The preparation and actual functioning of all programmes were carried out with the ultimate focus on increasing the outreach of the NECTAR's primary Schemes like TOSS, BAANS and Skill with Entrepreneurship Training and Students' Internship Programmes for the benefit of the entire NER.

NECTAR has taken up many activities during this financial year through various innovative and game changing technologies for the upgradation of rural livelihood in NER in consultation with state machinery. NECTAR's activities have been showing real changes in the ground level compared to earlier years and that can be seen from more and more active participation in respective states. NECTAR has made a comprehensive roadmap to increase efficiency in the delivery of the required technological services for the benefit of the people. At the same time, NECTAR has taken huge initiative in capacity development in the niche sectors like Drone Pilot, In-situ Drone Data Processing, etc. in collaboration with few incubation centres originated at IITs.

I am happy to mention that NECTAR has taken initiative to gather fund through other Govt. and non-Govt. funding agencies to work on specific sectors in NE for creating a complete eco system and driving large scale rural livelihood. Two major projects have been sanctioned by Ministry of DoNER through PM-DeVINE scheme with the project value is around ₹112 Cr. Similarly, NECTAR has received projects from Ministry of Agriculture, Animal Husbandry, SEED Division of DST, etc. All these projects will be involved mostly in sectors like Agriculture & Horticulture, Bamboo technology, Renewable energy etc.

Mission Apiculture was initiated by NECTAR with the approval of Governing Council during the last financial year. As a part of this, NECTAR has provided around 4500 scientific bee boxes in cluster level during the mustered crops cultivation by providing proper hands-on training to the beekeepers. Looking at the potential of apiculture in NE many organizations (including national and international) are in touch with NECTAR to work with us in collaborative approaches. We have connected to National Bee Board (NBB) for large scale development of this mission in future.

NECTAR is actively involved in capacity building in various sectors in collaboration with Entrepreneurship Development Institute of India (EDII) Ahmedabad. Training programs are regularly conducted on Bamboo sectors in the NECTAR's Agartala Centre (BCDI Agartala), NIT Arunachal Pradesh and other parts of NE. I am happy to share that NECTAR has dedicatedly initiated a Geo-spatial training centre at its Guwahati office, where on regular basis we provide training to the un-employed youth, students and others on Drone data processing, GIS training, drone awareness program etc. Many trainers got absorbed under this program and with time it is getting huge popularity not only in NE but also in entire eastern region.

We have undertaken a series of activities to transfer Scientific Knowledge to the Agriculture and Allied Sectors in various parts of the Region, the details of which follow in this report. As a part of its commitment to the development of Human Resources and Capacity Building, NECTAR has undertaken round-the-year activities related to Training and Skill Development activities including various Entrepreneurship Development Programs (EDPs) from time to time. NECTAR also participated in many events, exhibitions via online/offline mode which helped in promoting NECTAR's role as technology facilitator across the country.

NECTAR has been taking a leadership role in developing Bamboo Based Technology Interventions in the Region through an array of activities right from Technology Upgradation of Traditional Bamboo Industries, production of Bamboo based consumables, Product Development, and Innovation in Design to Market Linkage. Japan International Cooperation Agency (JICA) and Asian Development Bank (ADB) are in constant touch with NECTAR to initiate few trainings program in NER, particularly in Baboo sector.

In conclusion, I would like to extend my gratitude to the Department of Science and Technology, Government of India for its unstinted support towards realising the Vision and Mission of NECTAR. I also thank the esteemed members of NECTAR's Governing Council, Executive Council, Finance Committee and Project Assessment Committee (PAC) for guiding the progress of NECTAR in the past year. With an increase in its activities, the strategic and collaborative partnership network of NECTAR has increased in manifold, and I thank all stakeholders for their invaluable support and cooperation. I would also like to extend my gratitude to DoNER Ministry for supporting us two projects under PM DeVINE. A word of appreciation is due to my entire team at NECTAR who have worked tirelessly to keep the spirit of the organization in momentum. I am confident that with their contribution and heartfelt participation NECTAR will continue its journey to unveil new technological frontiers for the overall development of the North Eastern Region. With this optimism, I present to you the NECTAR 2022-23 Annual Report.

Dr. Arun Kumar Sarma

CHAPTER - 1

BRIEF ABOUT NECTAR

North East Centre for technology Application and Reach (NECTAR) has been setup as an autonomous institution at Shillong, Meghalaya under Department of Science and Technology, Ministry of Science and Technology, Govt. of India, with the approval of the Cabinet Committee on Economic Affairs on 7th June 2012. NECTAR was registered under the Societies Registration ACT 1860 on 30th November 2012. By virtue of the decision of the Cabinet, the erstwhile two technology Missions namely, National Mission on Bamboo Application (NMBA) and Mission for Geospatial Applications (MGA) started in 2004 and 2009 respectively were merged and absorbed with activities of NECTAR and started operational carrying forward assets and liabilities of the two Missions with effect from 2013-2014 (1st Jan 2014).

The basic objective of the NECTAR is to be the leading Centre to foster, nurture and ensure the delivery, sustenance and use of technology applications for public and social good; and to reach and expand the benefits of technology among people, communities, institutions and governments for equitable and inclusive social and economic development of the North Eastern Region of our country. The Centre will look at harnessing and leveraging niche frontier technologies available with central scientific departments and institutions. In order to assist the northeastern region, NECTAR will be ensuring applications of appropriate technologies for development in the areas of Agriculture, Food Processing, Water Sanitation, Biodiversity concerns, Watershed Management, Telemedicine, Horticulture, Infrastructure planning & development, planning and monitoring, and tele-schooling using cutting-edge MESHNET solutions, employment generation etc. for overall development of North East Region.

The HQ of NECTAR at Shillong has been established in the leased campus/building of Survey of India as a full-fledged operational office with an operational Office cum GIS Lab located in the Assam Society Campus, Khanapara, Guwahati. NECTAR also has its operations in Agartala, Tripura through administrative and management control of Bamboo & Cane Development Institute (BCDI). More than 80% of NECTAR's staff work in the Northeastern Region in various projects, however, a few number of staff (Admin. & Technical) are operating from its Delhi Office at Viswkarma Bhawan, (IIT-Delhi Campus) New Delhi. The NECTAR permanent campus will be located across a 5-acre land allotted in New Shillong Town Area by Govt. of Meghalaya which is currently under construction planning stage through the engagement of Project Management Consultant.

Vision

To be the leading centre to foster, nurture and ensure delivery, sustenance and use of technology applications for public and social good; and to reach and expand the benefits of technology among people, communities, institutions and governments for equitable and inclusive social and economic development of the North Eastern Region of our Country.

Mission

- Housing and leveraging technologies from R&D labs
- Utilisation of local, natural and other resources
- Demonstration of adaptable technologies
- Associated skill development programs for entrepreneurship and livelihoods
- Workshops , conferences and conclaves for problem identification and solutions

Technology Sectors

- Agriculture and Allied
- Bamboo and allied
- Biodiversity conservation
- Communication and IT
- Environment and sustainability
- Food processing
- Geospatial
- Health and Allied
- Livelihoods
- Natural Fibres and textiles

NECTAR COMMITTEES FY 2022-2023

Governing Council (GC) of NECTAR

1.	Secretary, Department of Science and Technology, GOI	Chairman
2.	Chief Secretaries of all 8 North Eastern States	Members
3.	Representative of North Eastern Council	Member
4.	Director General, NECTAR	Member Secretary

Executive Council (EC) of NECTAR

1.	Director General, NECTAR	Chairman
2.	Representative of North Eastern Council	Members
3.	Representative of 8 North Eastern States	Member

Finance Committee (FC) of NECTAR

1.	Director General, NECTAR	Chairman
2.	Financial Advisor, Department of Science and Technology or his nominee	Members
3.	Two members of Executive Council (nominated by the Chairman, Governing Council)	Member
4.	One of the Advisers (Technical) of NECTAR nominated by Director General	Member
5.	Sr. Administrative Officer, NECTAR	Member Secretary

INSTITUTIONAL MANPOWER AND ORGANISATIONAL CHART

DR. ARUN KUMAR SARMA - DIRECTOR GENERAL

COMMUNICATION AND ALLIED TECHNOLOGIES

Dr. Collin Z Renthlei - Advisor (Technical)

Shri Simanta Das - Chief Radio Technologist

Shri Ankit Shrivastava - Technology Evaluator

Dr. Pampee Das - Senior Analyst

Shri Debabrata Gogoi - Senior Analyst

Shri Deil Dkhar - Senior Analyst

CONTRACTUAL STAFF

Shri Virendra Kumar Yadav - Technician

GIS DIVISION

Shri Rajendra Jena	-	Chief Geomatics Officer
Shri Sattyam	-	Junior Geomatics Officer
Shri Somanath Nath	-	Senior Analyst
Shri Nitin Sharma	-	Senior Analyst
Shri Dharmendra Kumar Jha	-	Senior Analyst
Shri Bipul Sinha	-	Junior Analyst

PROJECT STAFF

Ms. Roshni Rai	-	Project Associate
Shri A. K. Padhi	-	Project Associate
Ms. Jahnabi Rai Deka	-	Project Assistant
Ms. Faria Hussain	-	Project Assistant
Shri Raj Kamal Keot	-	Project Fellow
Ms. Nikita Gogoi	-	Project Fellow
Shri Chesterfield Rymbui	-	Project Fellow
Shri Partha Pratim Choudhury	-	Field Assistant
Shri Dhrubajyoti Barman	-	Field Assistant
Shri Rajesh Kumar Patel	-	Field Assistant
Shri Leipha Y	-	Field Assistant
Shri Dinesh Hajong	-	Field Assistant

LIVELIHOOD DIVISION

Dr. Krishna Kumar	-	Advisor (Technical)
Shri Rakesh Kumar Sarmah	-	Chief Co-Ordinator (Technical)
Ms. Lyngksiar N Khongwir	-	Structure Designer
Shri P Mariadon Shanglang Pathaw	-	Food Technologist
Ms. Panjuma Kotoky	-	Senior Analyst
Shri Vivian Kharshiing	-	Junior Analyst
Shri Dhanjit Barman	-	Junior Analyst

SAFFRON PROJECT TEAM

Dr. Lily Shylla	-	Project Officer
Ms. Sunita Upadhaya	-	Project Associate
Ms. Gabriella Mary Kharrubon	-	Project Fellow
Ms. Baiamonlangki Sutnga	-	Project Fellow

FPO PROJECT TEAM

Ms. Aimebanrisa K Diengdoh	-	Agri Marketing Expert
Shri Raju Mugli	-	Crop Husbandary Expert
Shri Vikash Pangam	-	Crop Husbandary Expert
Shri Techi Tasino	-	Social Mobilization
Shri Silrak K Marak	-	Social Mobilization
Ms.Tana Roseli	-	Social Mobilization

ASHARIKANDI PROJECT TEAM

Shri Arnab Kumar Chakraborty	-	Project Co-ordinator
Shri Manoj Kumar Ray	-	Project Assistant (Tech.)
Ms. Nabanita Kalita	-	Project Assistant (Mkt.)
Shri Debojit Paul	-	Project Assistant (Tech.)

CONTRACTUAL STAFF

Shri Dipankar Chakraborty	-	Project Consultant
Shri Bharat Phukan	-	Project Supervisor

BAMBOO & CANE DEVELOPMENT INSTITUTE (BCDI) TEAM

Dr. Abhinav Kant	-	Project Coordinator
Sh. Satyaranjan Das	-	Project Supervisor
Ms. Sarita Sunar	-	Accounts Associate
Sh. Amulya Debbarma	-	Training Coordinator
Sh. Sikandar Kumar	-	Senior Carpenter
Sh. Biswajit Sutradhar	-	Carpenter
Sh. Prasenjit Sutradhar	-	Carpenter
Sh. Jitendra Sarkar	-	Machine Operator

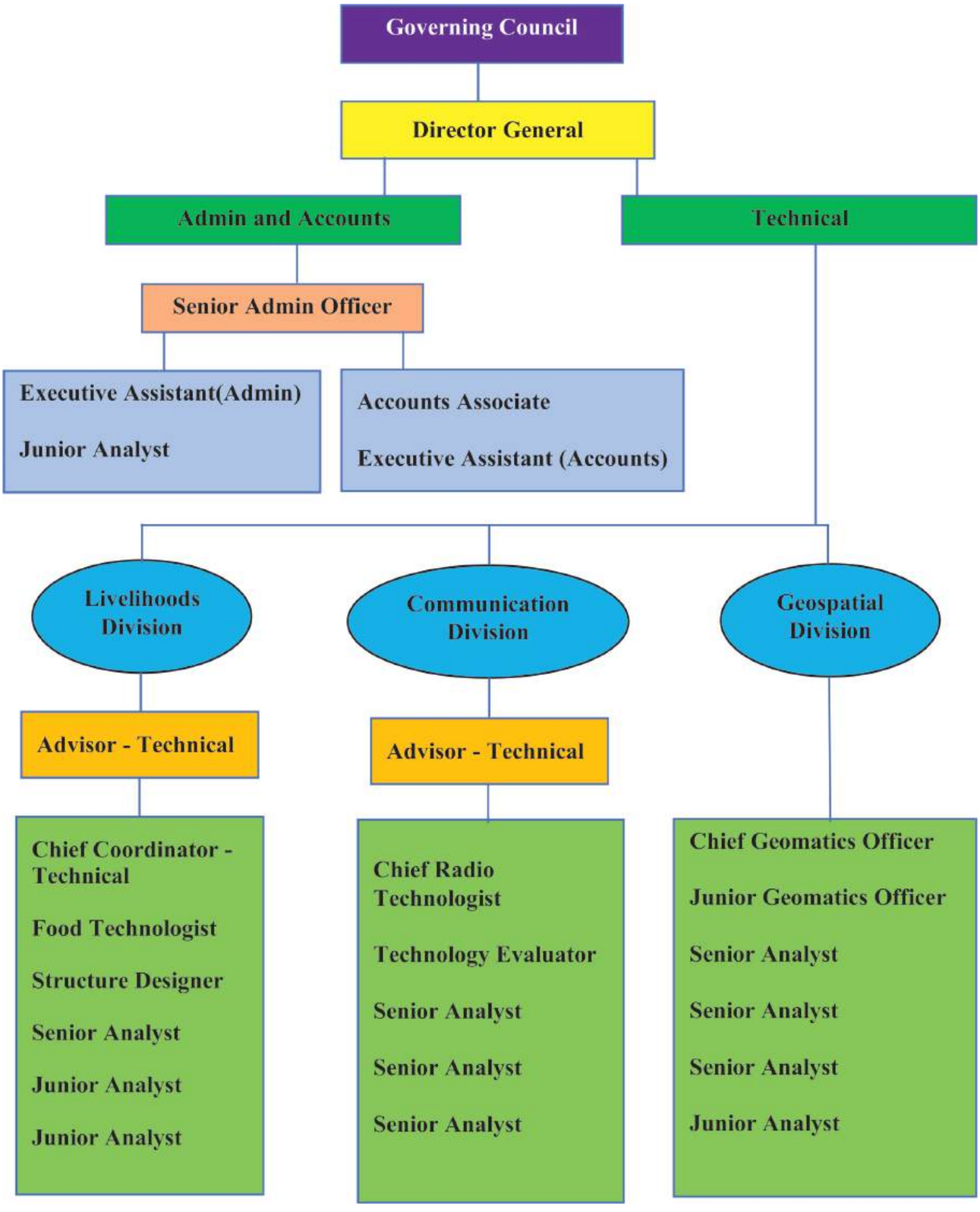
Sh. Samrat Datta	-	Machine Operator
Sh. Rakesh Debnath	-	MTS

ADMINISTRATION AND ACCOUNTS

Shri Simon Phukan	-	Sr. Administrative Officer
Ms. Garima Vashisth	-	Executive Assistant (Admin.)
Shri Gavin Vandroff Siangshai	-	Executive Assistant (Accounts)
Shri Ajit Kumar	-	Junior Analyst
Ms. Preeti Sharma	-	Personal Assistant

CONTRACTUAL STAFF

Shri Navin Kumar	-	Legal Consultant
Shri Birender Kumar Sharma	-	Accounts Manager
Shri Kamal Nain	-	Private Secretary
Smt. Rajni	-	Hindi Translator
Shri Rajesh Kumar	-	Computer Operator
Ms. Fedelia Diengdoh	-	Public Relation Associate
Shri Chandan Kumar	-	MTS
Shri Suresh C. Chauhan	-	MTS
Shri Ram Kumar Verma	-	MTS
Shri Ranjay Basumatary	-	MTS
Shri Peter Donbok Khongshah	-	MTS
Ms. Chearly Swedth	-	MTS
Shri Gokaran	-	Driver
Shri Ranjit Boro	-	Cook


Governing Council
Director General
Admin and Accounts
Technical
Senior Admin Officer
Executive Assistant(Admin)
Junior Analyst
Accounts Associate
Executive Assistant (Accounts)
Livelihoods Division
Communication Division
Geospatial Division
Advisor - Technical
Advisor - Technical
Chief Coordinator - Technical
Food Technologist
Structure Designer
Senior Analyst
Junior Analyst
Junior Analyst
Chief Radio Technologist
Technology Evaluator
Senior Analyst
Senior Analyst
Senior Analyst
Chief Geomatics Officer
Junior Geomatics Officer
Senior Analyst
Senior Analyst
Senior Analyst
Junior Analyst

CHAPTER - 2

COMMUNICATION DIVISION

1. Establishment of Community Radio Station (CRS) to promote Agriculture, Rural Livelihood & Community Development.

NECTAR had applied for setting up a Community Radio Station (CRS) in Mawkynrew Block in East Khasi Hills district in Meghalaya. The Letter of Intent for setting up the CRS was received on 05-08-2022 from the Ministry of Information & Broadcasting, Government of India. NECTAR has also obtained the required frequency, SACFA clearance and Wireless Operating License (WOL) for commissioning the community radio service.

The Community Radio Station, named Mawkhynrew FM (89.6 MHz) is under smooth progress, and it will be installed in Jongsha Youth & Culture Centre in Jongksha village. The focus of this project is to provide informative programs often socially motivated, ranging from education, health, environment, agriculture, rural and community development and social welfare including classical music in more than 100 isolated villages covering 35,000 population.

Fig: Project implementation site of project at East Khasi Hills district, Meghalaya

2. IoT Based Efficient Nurse Calling System for Better Service & Conflict Resolving.

The IoT Based Efficient Nurse Calling System is a pilot project currently being implemented in Assam and is designed to revolutionize healthcare services in the North Eastern states of India. By integrating smart devices and sensors into healthcare infrastructure, the system aims to streamline nurse-patient communication, improve service delivery, and resolve conflicts effectively. With automated communication networks, patients can call for assistance or medical support, and the IoT system promptly relays signals to nurses' stations or mobile devices, prioritizing urgent cases. This data-driven approach allows healthcare facilities to optimize operations, enhance patient care, and utilize AI integration to adapt to specific patient needs. Ultimately, the project seeks to enhance healthcare efficiency, patient outcomes, and overall nurse performance in the region.

Fig: Installation of medical equipment procured under the project

3. Development of Project Monitoring Dashboard for the CEM (Chief Executive Member) of Bodoland Territorial Region, Assam.

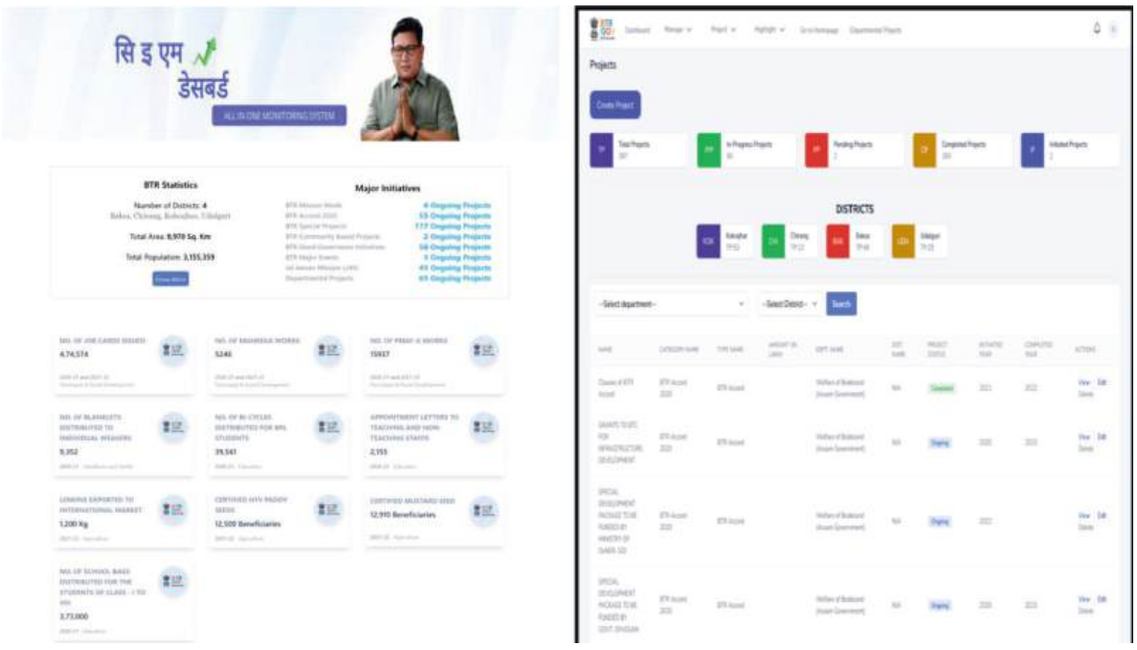


Fig: Project Monitoring Dashboard design of CEM, Bodoland region.

The project involves developing and maintaining an automated centralized dashboard application to monitor the execution and implementation of various projects and schemes in the Bodoland Territorial Region (BTR), Assam. The dashboard will cover 40 departmental projects, BTR Mission mode projects, BTR Accord 2020 projects, BTR Special projects, BTR Community base projects, BTR Good Government, BTR Major event details, and schemes launched by BTC, State & Central governments. Additionally, a separate dashboard will monitor the execution and achievement of financial/physical progress of BTR Accord clauses signed on January 27, 2020, between the Indian Government, Assam Government, and Bodo organizations.

4. Motif design and replication system of traditional Mizo puan.

The project aims to create a motif design and replication system for the traditional Mizo puan (Mizo cloth) by digitally representing and manipulating the basic design. The project is based in Mizoram and involves 10 Weaver Association groups as direct and indirect beneficiaries, allowing for enhanced preservation, retrieval, and innovation of the traditional Mizo puan motifs.

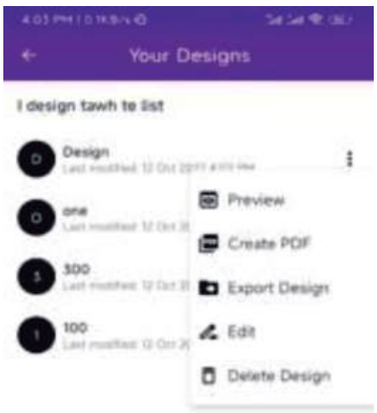


Fig: Software Application interface of motif design system

5. Awakening the hidden culture of North East to serve as a source of livelihood for the differently abled – Music for Living.

Objective: To establish an inclusive music school where no child is left behind and to provide an opportunity to earn livelihood through music.

Target group: All the interested youth of Meghalaya with special focus to those who are differently abled.

Meghalaya has a rich history of arts and music which with time has evolved and gave birth to many great musicians in the country. Drums, bamboo flutes and small handheld cymbals are some of the popular musical ensembles. "Music is a universal language" and a powerful tool that connects people from different backgrounds, particularly those with disabilities and serves a source of livelihood opportunity for them. The project entitled "Awekening the hidden culture of North East to serve as a source of livelihood for the differently abled-Music for living" envisioned by Laizawmliana Sailo, founder of the iconic music band of Shillong, **"Light after dark"** is a unique project which will enable empowerment of the disabled through music.

Fig: Inauguration of music school and performance by specially abled persons.

6. Development of Software for automated identification of gamusa loom type using Artificial Intelligence.

The project aims to develop a software-based AI system for automated identification of gamusa loom types, a traditional handwoven cloth with cultural significance in Assam. This initiative safeguards traditional artistry, supports artisans' livelihoods, and promotes appreciation for authentic handmade gamusa products while preserving cultural heritage. The successful implementation in Assam can serve as a model for protecting other traditional crafts and promoting sustainable livelihoods for artisans and weavers across regions.

Fig: Testing of app for identification of Gamusa Loom type

7. Digitization & Documentation of Cultural Heritage and Literature in Meghalaya.

The project aims to digitize and document the cultural heritage and literature of Meghalaya, including Khasi, Jaintia, and Garo hills, along with museum collections, art collections, books, manuscripts, and audio files from different regions of the state. It is based in Meghalaya and three NGOs and one institute are involved as direct and indirect beneficiaries in the preservation and dissemination of the rich cultural heritage of the state.

Fig: Demonstration of digital procedures implemented used in digitizing of various literature of Meghalaya

8. Real Time Patient Monitoring System (Last Mile Services) for Rural and Hard to reach Population.

The NECTAR supported project entitled, "Real Time Patient Monitoring System (Last Mile Services) for Rural and Hard to reach Population" is being implemented by Hake Technologies Pvt. Ltd. in Kokrajhar, Assam. It was inaugurated in Simbargaon State Dispensary, Kokrajhar, BTR on 4th March 2023.

The objectives of the project were to extend the access to health services by linking the beneficiaries from rural or hard-to-reach areas with the existing public health system and to enhance the acceptability of the public health system among people from hard-to-reach areas.

A software was also developed for telehealth: Patient Registration, follow-up and referral by generating a unique health ID for all beneficiaries for ensuring

Fig: Inaugration of patient monitoring facility at Simbargaon Simbargaon State Dispensary, Kokrajhar

tracking and providing a continuum of care through Telehealth. The target beneficiaries of approximately 3,800 people consisted of the vulnerable population such as children, adolescents, Pregnant and Lactating Women (PLW), women, People with Disabilities (PWD), and the elderly residing in the following four backward villages – No.1 Jaolia Para, No. 2 Jaolia Para, Duramari East and Duramari West under Simbargaon PHC.

9. Mobile Clinic with Real Time Patient Monitoring System to provide Last Mile Support.

This project aims to reach the disease-affected population registered through a mobile clinic with all necessary equipment and drug supplies and linking the neediest to the St. Xavier Care and Support Centre in Mawsynram. It incorporates a monitoring and tracking system of the mobile van by integrating it with Global Positioning System (GPS) and Locational Technology. It gathers vast information on the health services and needs of people accessing mobile clinics from rural and hard-to-reach areas of East Khasi Hills. The Primary target beneficiaries, though not exclusively, consist of the vulnerable population such as Children, Adolescents, Pregnant and Lactating Women (PLW), Mothers & children, People with Disabilities (PWD) and the Elderly residing in the hard-to-reach and rural areas.

Fig: Medical devices installed at the medical support centre at Mawsynram.

CHAPTER - 3
GEOSPATIAL DIVISION

1. Mapping of Flood Prone Areas of Assam Using Geospatial Technology for Risk Reduction and Resilience Building: Pilot Intervention in the Morigaon District, Assam

NECTAR has carried out satellite-based study for the mapping of Flood prone Areas in Morigaon district of Assam. The study also carried out the assessment of flood hotspots, flood vlunerability, impact on land use and land cover, Bankline migration, change in sandbar area, population affected due to flood and change in areas/status of bils between 1972 and 2022 using Survey of India toposheet and Microwave imagery.

The study found two major hotspots in the Morigaon district covering 133 and 19 villages respectively in the district. The study also found that numbers of villages falling under very high, high, Moderate, Low, very low category of vulnerability are 83, 125, 185, 131 and 108 respectively. The study also found that a total 125 villages were either completely washed away or were partially eroded. The study team tried to trace the villagers of washed villages but they couldn't be traced on ground. Overall, it was also found that most of the bils in the Morigaon district are encroached (anthropogenic and natural) and their areas have been reduced. All the findings of the study were also verified using the ground survey and drone survey during the flood of 2022. The study recommended various structural and non-structural measures to reduce the impact of flood on common people. Drone images of flooded villages in Morigaon district in year 2022 and also cluster map and vulnerability maps in Morigaon district is shown below.

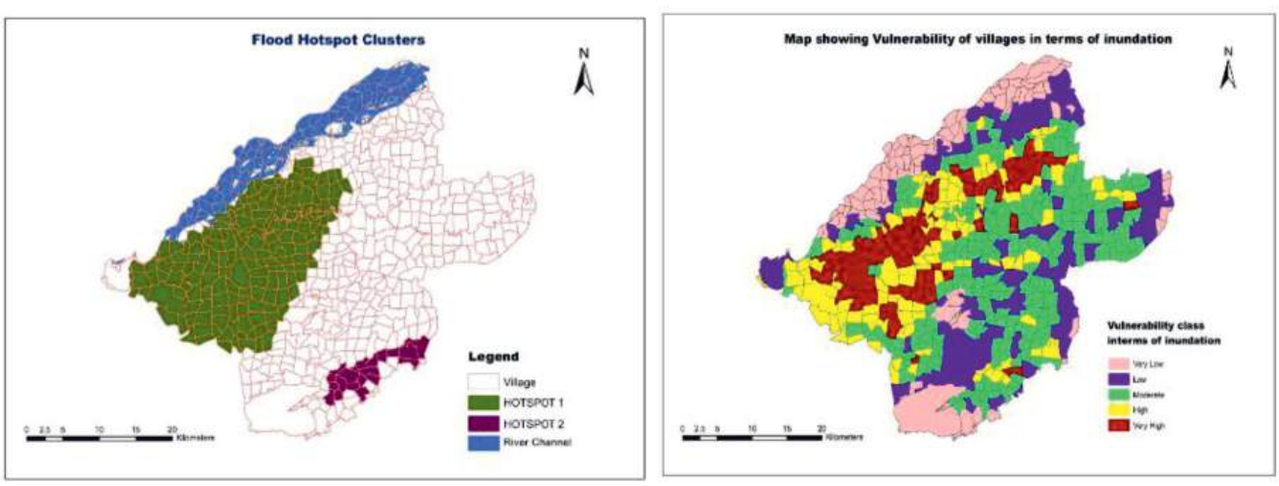


Fig: Flood hotspot clusters and vulnerability map in Morigaon District, Assam.

Fig: Real time drone survey of floods and extent of damages caused at Morigaon, Assam

2. Pilot study on Medicinal, Aromatic and Dye Yielding Plants (MADyP) of Assam: Prospects and problems of conservation, scientific assessment and entrepreneurship development.

A total of 63 locations across Assam were surveyed for mapping MADyP plants of Assam based on contact tracing. All the study data was converted into the GIS form and is been stored in the GIS repository for the future reference on these resources.

During the survey it was found that most the MADyP are being endangred due to non-availability resources and market. Also, the earning as compared to hard work involved is not that much as per the farmers. Most of the MADyP are being conserved in very small nurseries maintained by forest officials/Govt colleges.

Some of farmers are still involved in MADyp cultivation mainly for Lemon grass and citronella. The study has proposed to support farmers during scientific machinery and technologies and to create market linkage so that more farmers can be involved in the MADyP cultivation and conservation.

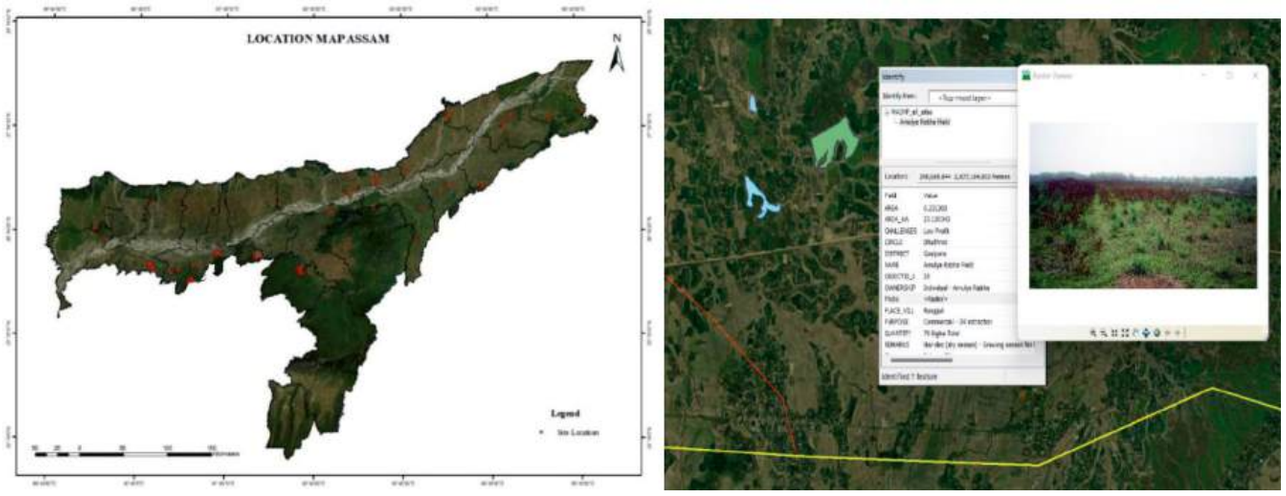


Fig: Attribution of data collected from field in GIS environment.

3. Pilot study on Bamboo Resource Mapping in RiBhoi and Karbi Anglong

NECTAR carried out pilot study on Bamboo Resource mapping in RiBhoi district of Meghalaya and Karbi Anglong district of Assam. The study was based on the field survey to collect the field samples to map Bamboo on Google Earth and Satellite Imagery. For the Ribhoi district based on the field survey, the bamboo was mapped on Google Earth Imagery. Out of the total bamboo area in the district, 95% of area was mapped.For a small area in Karbi Anglong district, Bamboo was mapped using the base map in ArcGIS and bamboo was further classified based on the area of continuous coverage.

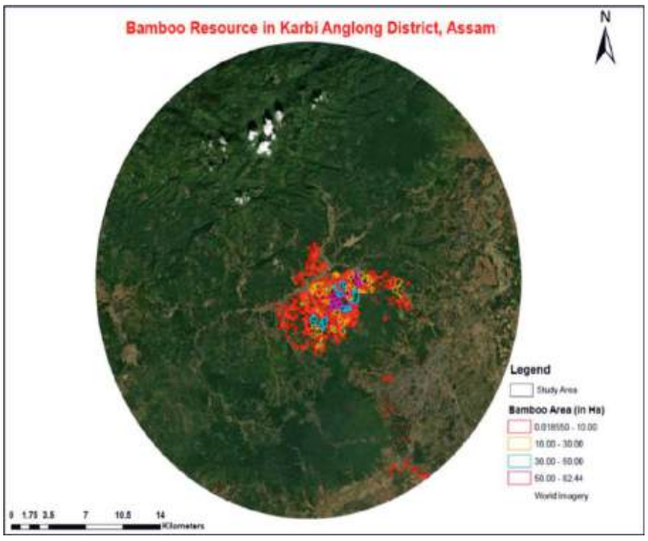


Fig: Spatial distribution of bamboo in Karbi Anglong District, Assam

4. Aerostatic Drone for Forest Surveillance and Monitoring.

NECTAR has supported a unique type of drone project known as Aerostatic drone which will be implemented by Airbotix Technologies Pvt. Ltd. which will be used for Forest Surveillance and Monitoring. Currently MoA between NECTAR and Airbotix Technologies Pvt Ltd has been signed and the first instalment of the project has been released already and currently the procurement of raw materials for the first drone is in process.

Fig: Demonstraion and site visit to Aerostatic drone facility

5. Pilot studies for GP (Gram Panchayat) level Crop Yield Estimation using Advanced Technology for Non-cereal crops.

NECTAR is currently carrying out Gram Panchayat level study for the Yield Estimation using Advanced Technology for Non-cereal crops in 13 districts spread across India. The study is been carried out for 3 crops: Mustard, Jowar and Sorghum. Acreage estimation using the open-source satellite imagery and Planet Lab's high-resolution data having 3-meter resolution has been completed for all the 13 districts.

Further the Remote Sensing parameters such as NDVI, NDWI, LSWI, LAI and FPAR were generated using the satellite imagery. Also, the weather parameters such as rainfall and average temperature has been collected from the IMD. Further Soil moisture and LST products are also used for the project. All the remote sensing, weather and satellite derived products are being used for the modelling purpose. For all the 13 districts, intensive field surveys for the collection of ground truth were carried out and the data has been used for the classification of various crops on the satellite imagery. For all the 13 districts, Crop Cutting Experiments (CCE) was carried out and the data is been used to create the Yield Forecast Model. Currently the project is in advanced stage of crop yield forecast modelling.

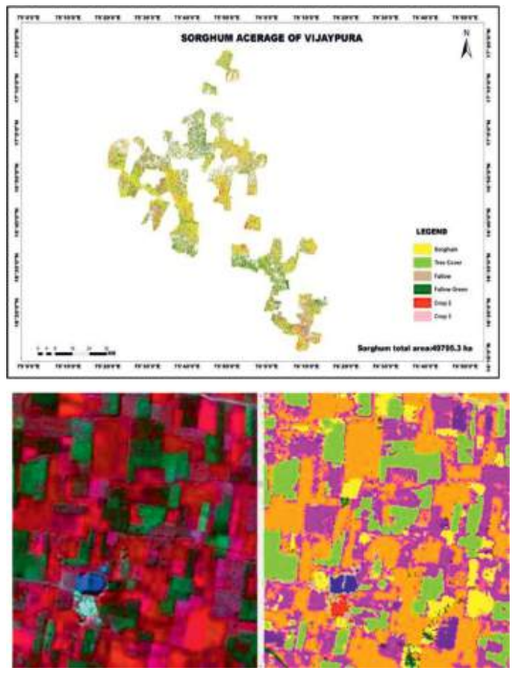


Fig: Satellite image depicting yield estimation and crop distribution

6. Drone Survey

(a) Svamitva Project

1. Drone Survey in 19 villages of Arunachal Pradesh from Kipti and Zemithang circle of Tawang district was successfully carried out and processed data having Orthomosaic images, DEM and Point cloud was submitted to Survey of India.

2. Drone Survey in 42 villages of Sirohi district of Rajasthan was carried out and processed data was submitted to Survey of India.

3. Drone Survey in 112 villages of Mansa and Moga district of Pubjab was carried out successfully and data has been submitted to Survey of India.

4. Drone Survey in more than 300 villages of Chattishgarh was also carried out successfully and data has been submitted to survey of India.

(b) Sand Mining Areas of UP

Drone Survey in more than 50 sq. Km of Sand mining areas in UP was carried out successfully and has been submitted to Government of Uttar Pradesh.

Fig: Field drone survey undertaken at various locations

CHAPTER - 4

LIVELIHOODS DIVISION

1. Home-made Chocolate Making Plant.

The project aims to establish a home-made chocolate-making plant in Guwahati, Assam, under the brand "Mou's Chokotreat." The promoter envisions creating delicious and premium chocolates without additives or preservatives, while highlighting the health benefits of chocolate as a snack. The focus is on using locally sourced raw materials from the North East region to infuse unique flavors loved by the people in the area. The initiative is currently in progress, with the goal of tapping into a vast consumer base in the region and promoting chocolate consumption as a healthy and enjoyable choice for all age groups.

Fig: Packaged chocolate products by Mou's Chokotreat and their display at various events

2. Pilot Project on Economic Development of Rural Farmers in Nagaland through Shiitake Mushroom Cultivation.

The project aims to provide training and support to rural farmers in Nagaland, enabling them to cultivate Shiitake mushrooms as a sustainable and income-generating agricultural venture. By promoting innovative agricultural practices and providing necessary resources, the project seeks to uplift the economic conditions of rural farmers, enhance their livelihood opportunities, and contribute to the overall development of the agricultural sector in the region.

Fig: Cultivation of Shiitake mushrooms in locally available hard wood logs

3. Innovation in coloured pearls production, and community mobilization and sensitization for the freshwater pearl culture leading to entrepreneurship development in North East India.

The project, based at the Department of Zoology, Cotton University, aims to establish pearl farming as a livelihood opportunity alongwith training sessions on pearl farming for various individuals in Assam, Meghalaya, and Nagaland. This pioneering endeavour revolves around introducing innovation into the realm of colored pearl production, transcending the allure of traditional white pearls. Colored pearls, with their captivating shades of pink, lavender, and green, hold immense market appeal, and the project aims to leverage cutting-edge techniques in freshwater pearl farming to make these vibrant gems a hallmark of the region's pearl industry. Beyond economic enrichment, the project places a strong emphasis on community mobilization, awareness-building, and entrepreneurship development. It seeks to empower local communities by raising awareness about the sustainable income potential of freshwater pearl farming, offering training sessions to equip individuals with practical skills in pearl cultivation, harvesting, and marketing. As the project unfolds, it envisions a future where the lustrous beauty of colored pearls not only enhances livelihoods but also enriches the cultural and ecological landscape of the region, fostering economic growth and self-reliance among its people.

Fig: Inhouse pilot cultivation and harvesting of pearls at Cotton University,

4. Extraction and processing of Lotus Fiber to produce Lotus Silk-A Sacred Luxury along with other Lotus by products.

The project in Manipur focuses on extracting and processing Lotus Fiber to produce Lotus Silk, a sacred luxury fabric, and exploring other Lotus by-products. By combining traditional craftsmanship with modern techniques, the initiative aims to create high-end textiles while promoting sustainability and livelihood opportunities for local communities. The abundant presence of Lotus flowers in Manipur makes it an ideal location for this innovative project, preserving the cultural significance of Lotus and its various applications in industries such as cosmetics and organic fertilizers.

Fig: Various products manufactured from lotus flower and its stem fibres

5. Infrastructure Up – gradation of textile and fashion training cum production centres by Ramakrishna Mission Ashrama, Sohra.

This project was proposed to NECTAR in order to expand ,strengthen and upgrade the existing Incubator and Accelerator infrastructure supported by SIDBI and accommodate more trainees to ensure their employability. Many new products like Dhara (silk, cotton, blended), sarees (cotton, silk), Stole (Cotton and ERI) are produced in the centre. 16 girls are getting employment through this weaving unit and 27 women are involved in the tailoring unit. From these, 20% are general and others from ST communities.

Fig: Installation of textile loom and various textile products at RKM, Sohra

6. Livelihood Enhancement of Rural farmers through Agro & Spice product processing and packaging.

The project aims to enhance the livelihood of rural farmers iat Kongal Chanam Leikai, Imphal East District, Manipur through agro and spice product processing and packaging. It focuses on promoting contract organic farming, establishing raw-material banks, and improving quality control and market chain systems. The project has already made achievements, supporting numerous small and marginal farm families, promoting organic turmeric farming, and providing market linkages for sustainable income generation.

Fig: Manufacturing and packaging facility of various spice products

7. Mushroom Spawn Production Unit.

The Mushroom Spawn Production Unit project aims to address the lack of quality mushroom spawn in Bongaigaon district, Assam, and nearby regions, facilitating mushroom cultivation as a means of diversifying agriculture and improving nutrition. The project, located in Khagarpur village has already provided training on mushroom cultivation to more than 50 individuals, including farmers, housewives, and unemployed youths in different parts of Assam. The initiative is in progress and holds the potential to enhance mushroom production and benefit local communities.

Fig: Mushroom spawn production unit at Bongaigaon district, Assam

8. Pilot Project to develop, manufacture and market Bamboo disposable cutleries and Bamboo bottles.

The Pilot Project successfully developed two manufacturing units in Faridabad and Jorhat, Assam, with special purpose machines (SPMs) for producing eco-friendly bamboo disposable cutleries and bottles, including medicine and industrial bottles, ice-cream spoons, and ice-candy sticks. The initiative provided direct employment to 12 individuals and benefited around 25-30 individuals indirectly for sourcing bamboo and raw materials.

Fig: Bamboo based disposable cutlery products

9. Dimoria Eri Cluster.

The project focuses on enhancing livelihood generation in North East India through the production of Eri silk using a new technological approach, including high-speed bi motorized spinning machines and in-house production of Eri cocoon and yarn. By improving the quality and production of yarn and fabric, the project aims to make the traditional practice of rearing, spinning, and weaving Eri silk more sustainable and market oriented. The project is located in Baligate, Kamrup (Metro) District, Assam. The socio-economic impacts include forming visible entities for Eri growers, spinners, and weavers, promoting self-sustainability, and skill upgradation to meet market demands. Achievements include establishing good infrastructure and emphasizing productivity through Self-Help Groups' involvement in Eri culture.

Fig: Harvesting of Eri silk cocoons for conversion into yarn

10. Setting up pre-processing centres for horticultural and medicinal plant produces at Anini, Dibang Valley, Arunachal Pradesh

Situated at Anini, Dibang Valley, Arunachal Pradesh this project focuses on producing food products through processing of horticultural and medicinal plants. Kiwi, the most commonly found local fruit of Arunachal and the seasonal fruits like peaches and apples which is available in the locality are used for pulping and processing. Kiwi, apples, lemongrass etc. are used to produce different products like jams, jellies, marmalades, juice, frozen or dried slices. which have entered the local retail market. Once the FSSAI license is granted to them, the products can be commercialized. This will minimize the inherent problems of the small cluster units and connect them to the existing market base. The Agency is itself an FPO consisting of 100 farmers. There are more than 300 farmers who have been growing and selling Kiwi and its products.

Fig: Installation of machinery for processing of horticultural and medicinal plants

11. Employment Generation through Arecanut Leaf Plate Manufacturing at Tripura.

This project on manufacturing disposables from Arecanut Sheaths is a successful project providing employment to 18 people directly involved in the process of manufacturing plates in the unit and 200 individuals indirectly who are involved in the supply of raw materials to the unit.

Fig: Manufacturing unit for arecanut left products at Tripura

12. TSetting up Mustard Processing Unit at Dibrugarh, Assam.

This project located at Khowang in Dibrugarh, Assam focuses on empowerment of local farmers associated with mustard cultivation. A Farmers Producer Company has been formed with mustard as their primary crop. A total of 200 beneficiaries are involved in collection of raw materials and in the production process.

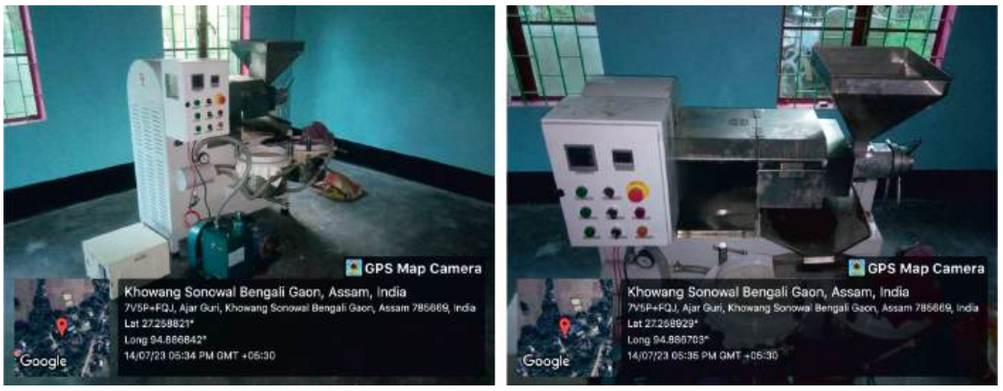


Fig: Setting up of mustard processing unit

13. Setting up of Rubber Plant in Ichamati, Meghalaya.

The project aims to establish a rubber plant in Ichamati, Meghalaya, to promote rubber cultivation and processing in the region. It will create job opportunities, boost the rural economy, and enhance the rubber industry's self-sufficiency in the North Eastern region. The project includes site preparation, selecting suitable rubber clones, farmer training, and setting up a processing unit. The goal is to benefit from rubber cultivation economically, reduce import dependence, and implement sustainable practices.

Fig: Processing unit for rubber plant

14. Innovation in Meat Curing and Smoking Practices adapted in NER.

The project focuses on innovating meat curing and smoking practices in the North Eastern Region (NER) of India to address health and food safety concerns. Traditional meat curing and smoking methods in Nagaland and Meghalaya lead to the formation of potential carcinogens (PAHs and HCAs) due to the use of non-food grade materials and improper smoking techniques. The promoter proposes the fabrication of a low-cost smoker with a filter and temperature control to reduce carcinogen formation. The smoker will have a food-grade metal body, multi-axis heat for uniform heating, and twin chambers, with capacities ranging from 10-150 kgs. Additionally, the project aims to address the issue of poor electrification in the NER by developing modular climate-controlled chambers that use good bacteria (LAB) and climate control to inhibit the growth of unwanted microorganisms in cured meat. The installation of a prototype climate control chamber has already taken place in Sonapur, Kamrup, Assam. The project aims to implement these innovations in meat curing and storage throughout the entire NER states.

Fig: Installation of processing unit for smoking and curing of meat

15. Setting up of Commercial production Plant of Xaj Pani- The Heritage Rice Based Alcoholic Beverage of Assam.

The project involves setting up a commercial production plant for Xaj Pani, a traditional rice-based alcoholic beverage of Assam, brewed by the indigenous Ahom tribe. The initiative aims to preserve and promote this heritage drink, which holds cultural and ritual significance, as well as potential health benefits. The Xaj Pani is produced using ancient techniques, and the project successfully completed its commercial production and distribution in various places in Assam, with plans for expansion to other states in the North Eastern Region and beyond. The endeavor has garnered attention in Ambrosia Magazine, highlighting its significance in the region's rich and diverse culture.

Fig: Processing unit for Xaj Pani

16. Infusion of Scientific Technology for integrated dairy product development as an alternative livelihood to rural farmers by M/s Dikhowmukh Dairy Industry, Assam.

Fig: Processing unit at Dikhowmukh Dairy Industry

The project, located at Dikhowmukh, Assam aims to empower rural farmers by integrating scientific technology into dairy product development. On daily basis, an average of 500 litres of milk is produced and processed in Dikhowmukh Dairy Industry. Before the initiation of the project there was no organized platform to source and utilize the milk production in the area leading to frequent wastage and spoilage of milk in the area. The proposed project has helped in channelizing the milk production in the area wherein the milk can be processed-homogenous, pasteurized and packaged for the market.

The project has been able to develop a positive mindset among the farmers regarding sustainability and economic viability of dairy farming. It has greatly reduced the wastage and spoilage of produced milk in the area. Also, farmers have embraced sustainable agricultural practices where they use cattle wastes as manure and surplus fodder and agricultural by products as animal fodder. The project has generated employment opportunities for many people and youths of the region. Also, people have become more aware about the scope and benefits of dairy farming and self-engagement in the sector as a source of employment. It has absorbed 100 beneficiaries of Dikhowmukh cluster, where they were educated and trained regarding the potential and benefits of dairy farming and making them self-sustainable in the sector. As one of the outcome, the unit which focuses on the production of milk and milk products has launched a brand by the name of "Koriya" with outlets established at Jorhat and Sivasagar for marketing.

17. Creating innovative Nutritional Superfood from Mushrooms cultivated indigenously to empower women in weaker sections of society.

The project aims to empower disadvantaged communities, particularly tribal women, by creating marketable superfoods using organically cultivated mushrooms. The idea is to mix mushrooms with various indigenous agri-produce from the North East region, such as banana, sticky rice, tapioca, and jackfruit, to produce healthy and nutritious products like Mushroom Candies, Chips, Instant Soup, and Noodles. The initiative, currently in progress in Guwahati, Assam, seeks to uplift the economic status of vulnerable populations and promote women's empowerment through sustainable economic ventures.

Fig: Setting up of mustard processing unit

18. Fusion Moksha plans to set up a Product Development and Manufacturing Facility in Assam, utilizing the North-East region as a vendor base for the products.

The project aims to benefit 9 individuals and 2 NGOs, providing employment opportunities and promoting local entrepreneurship. It seeks to preserve indigenous art forms and cultural heritage while showcasing the region's skills. The facility's focus is on creating a sustainable and successful manufacturing ecosystem that contributes to the economic growth of the North-East.

Fig.: Various products manufactured by Fusion Moksha

19. Development of solar operated paddy thresher for sustainable livelihood of Agricultural workers in North-eastern India.

The project aims to develop a solar-operated paddy thresher to improve the livelihoods of agricultural workers in North-Eastern India. By harnessing solar energy, the technology offers a sustainable and efficient solution for threshing operations, reducing manual labor, increasing productivity, and promoting renewable energy use in the region. The technology has been successfully developed by Dr. Thaneshwar Patel, Department of Agricultural Engineering, North Eastern Regional Institute of Science and Technlogy, Arunachal Pradesh and is in its final stages of refinement and will be made available for commercial purchase at nominal prices to the local farmers in the region.

Fig.: Solar powered paddy thresher developed by Dept of Agricultural Engineering, NERIST

20. Alternative Livelihood Generation through Tofu value addition and marketing from Soya Dal in Assam.

The project in Assam aims to create alternative livelihood opportunities through the value addition and marketing of tofu made from locally sourced soya dal (soybean). By involving farmers and women in the tofu production value chain, the initiative enhances income generation and economic independence. It focuses on training and capacity building, ensuring quality standards, and promoting tofu as a healthy food option. Collaborations with government departments and NGOs facilitate market linkages and distribution. The project envisions fostering economic empowerment, nutrition, and sustainable development through tofu production and marketing in Assam.

Fig: Installation of processing unit for tofu manufacuring

21. Technological Enhancement in the existing food processing unit to Increase Productivity

Through NECTAR's support, the unit run by Nunsei Fruits & Vegetable Products Industry which focuses on manufacturing of fruit products could enhance the production capacity from 2 MT to 8 MT with the products including pineapple tit bits, slices, jams, marmalades, concentrates, bamboo shoot etc. In terms of the market, linkage could be established in Maharashtra and the Hon'ble Chief Minister of Tripura also flagged off the export of 40 T of processed pineapples to Germany. The Industry had also started a pilot scale contract farming with 1 farmer each from the villages of Nalkata, Nepaltilla and Darchwi and about 30 people got direct employment from various categories and indirectly 25 Families of 100 members from ST community are getting the benefits due to processing unit through the sale of their pineapples directly to company. It is expected to achieve the target of 100 families as the project is being implemented.

Fig: Installation of processing unit for tofu manufacuring

22. Multipurpose Eco Enzyme Processing Unit (MEEPU)- a Community Solid Waste Management: Turning Waste into Wealth & empowering Local SC population.

The Multipurpose Eco Enzyme Processing Unit (MEEPU) is a community solid waste management initiative that aims to turn waste into wealth and empower the local Scheduled Caste (SC) population. The project utilizes eco enzymes to effectively manage solid waste by accelerating organic waste decomposition and producing valuable by-products like compost and bio-fertilizers.

By establishing decentralized waste processing units, the project involves the local SC community, providing them with livelihood opportunities and improving their socio-economic status. This innovative approach not only promotes environmental sustainability but also enhances community resilience and inclusivity, creating a more sustainable and inclusive future.

Fig.: Handwash and hair wash products

23. Development of training cum production unit of bell metal items at Sarthebari, Assam.

The project involves establishing a training cum production unit for bell metal items in Sarthebari, Assam. This initiative aims to impart skill development and training to artisans, enabling them to produce high-quality bell metal products. By creating a platform for learning and production, the project seeks to preserve and promote the traditional art of bell metal craftsmanship, while also generating sustainable livelihood opportunities for the artisans in the region.

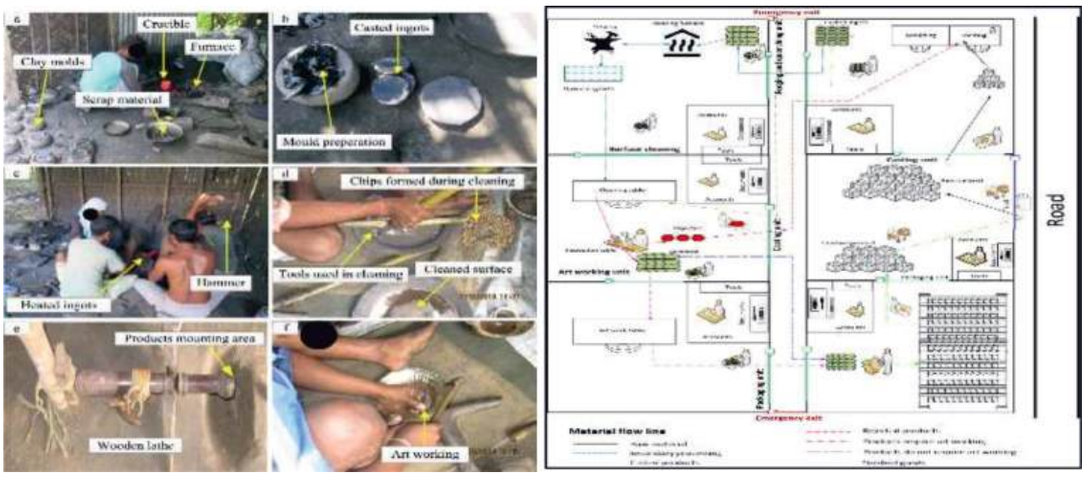


Fig.: Existing manufacturing process and layout plan for development of te bell metal manufacturing unit

24. Scientific Beekeeping and Honey Processing for Development of Rural Community by producing Honey and other Value-Added Products in Assam and Arunachal Pradesh

This project consists of skill development and capacity building, handholding program for scientific beekeping and honey processing for the development of rural community by producing honey and other value-added products at Sonitpur district, Assam and Changlang district, Arunachal Pradesh being implemented by M/s Kanyaka and M/s CREED respectively. With the support of NECTAR bee boxes have been installed and honey has also been extracted, packed, and marketed. As part of the project, there is also a provision for setting up a mini honey packaging and testing centre at these two sites by a NECTAR identified technology partner.

KANYAKA has produced 1200 litres of honey in first phase of the project from 99 beehive boxes. The project supported KANYAKA in establishing own brand of the honey "Kanyaka Honey" and designing and printing honey bottle labels for marketing in all over Assam. Most of the manpower requirement will be met from the local area.

25. Development of an Artistic Textile Cluster-Introduction to appropriate technology and training on skill upgradation for revitalization of innovative product.

The Handloom sector reflects the glorious cultural heritage of our country. It is an important source of livelihood in rural areas. Assam has been known as the *"land of weavers"* and the weaving skills of Assamese women were praised by Mahatma Gandhi himself. The project tilted as Development of an 'Artistic Textile Cluster-Introduction to appropriate technology and training on skill up-gradation', has been supported by NECTAR in collaboration with *APRINS, NGO*, Guwahati for the revitalization of innovative product and it has been implemented in covering two pockets of Sivasagar and Dibrugarh district of Assam.

Four inspiring women from Sivasagar and Dibrugarh have found success in the handloom sector with the support of NECTAR. Mrs. Debajyoti Borah, from Bharalua village, increased her monthly income from 3000 to 8000 after receiving a wooden loom and training. Mrs. Rajashree Saikia, from Na-Katani Kalugaon, now weaves 3-4 gamochas daily, earning over Rs. 7000 monthly. Similar success stories come from Mrs. Deepa Borah and Mrs. Biporna Borah, both receiving wooden looms from NECTAR. These women are grateful for the support that has led to their self-sustaining livelihoods.

CHAPTER - 5

INHOUSE INITIATIVES

1. Saffron cultivation in North-East India.

Pilot project to expand saffron cultivation in the states of Arunachal Pradesh, Meghalaya, Mizoram, and Sikkim, identifying specific locations for cultivation was undertaken. The socio-economic impacts of saffron cultivation in the region include diversifying agricultural products, reducing farmers' dependency on conventional crops, uplifting farmers' socio-economic status, and creating employment opportunities. The project has achieved significant milestones, with successful flowering and corm growth observed in all cultivation sites, indicating the suitability of the region's soil and climate for saffron cultivation. Moreover, new potential sites have been identified for further trial cultivation in Arunachal Pradesh. This initiative not only holds promise for income generation but also contributes to the economic development of the North-eastern region.

Fig.: Distribution of saffron corms to beneficiaries alongwith practical field demonstration for cultivation procedures followed and flowering of saffron at the sites.

- **Identification of cultivation sites**

To identify the potential location(s) for saffron cultivation, the geographical and climatic condition of Pampore region of Kashmir was taken as a reference and a detailed survey was carried out in different geographical locations of the North-eastern region. Parameters such as soil type, soil pH, temperature, relative humidity, moisture content, rainfall and elevation were taken into consideration. A total of 17 sites were identified within the North-eastern region. These sites are Dirang, Mechuka and Shergaon in Arunachal Pradesh, Laitkor, Mairang, Nongshilliang, Thangsning, Umpling and Upper Shillong in Meghalaya, Ailwang, Lunglei and North Vanlaiphai in Mizoram and Sajong and Yoksum in Sikkim. Details of the selected sites and standard parameters are given below:

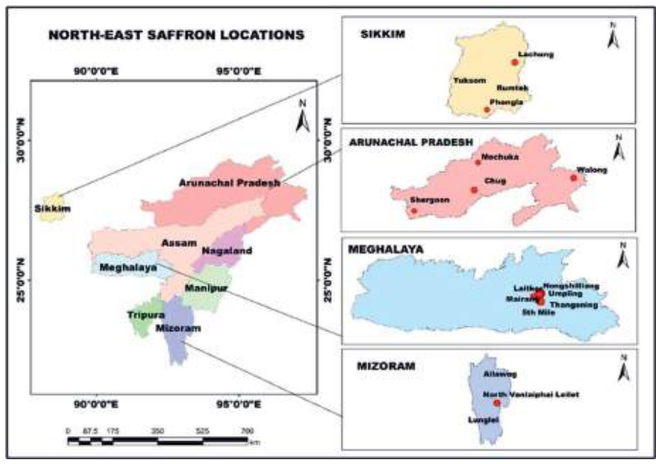


Fig.: Saffron cultivation sites at different geographical regions of North-East India

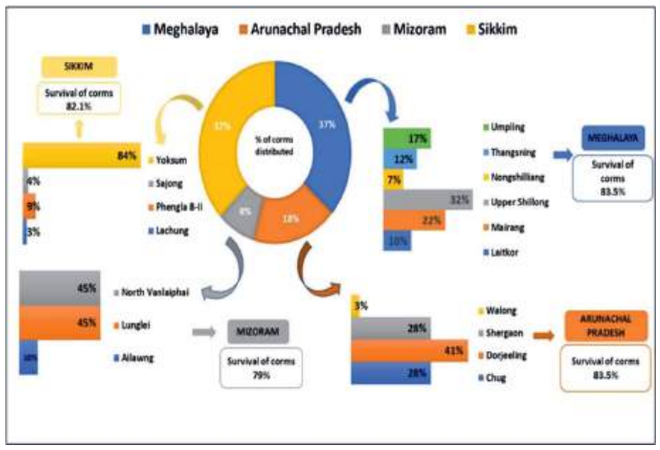


Fig.: Graphical representation of total corms distributed to the collaborating partners and survival rate of corms represented in percentage for each state

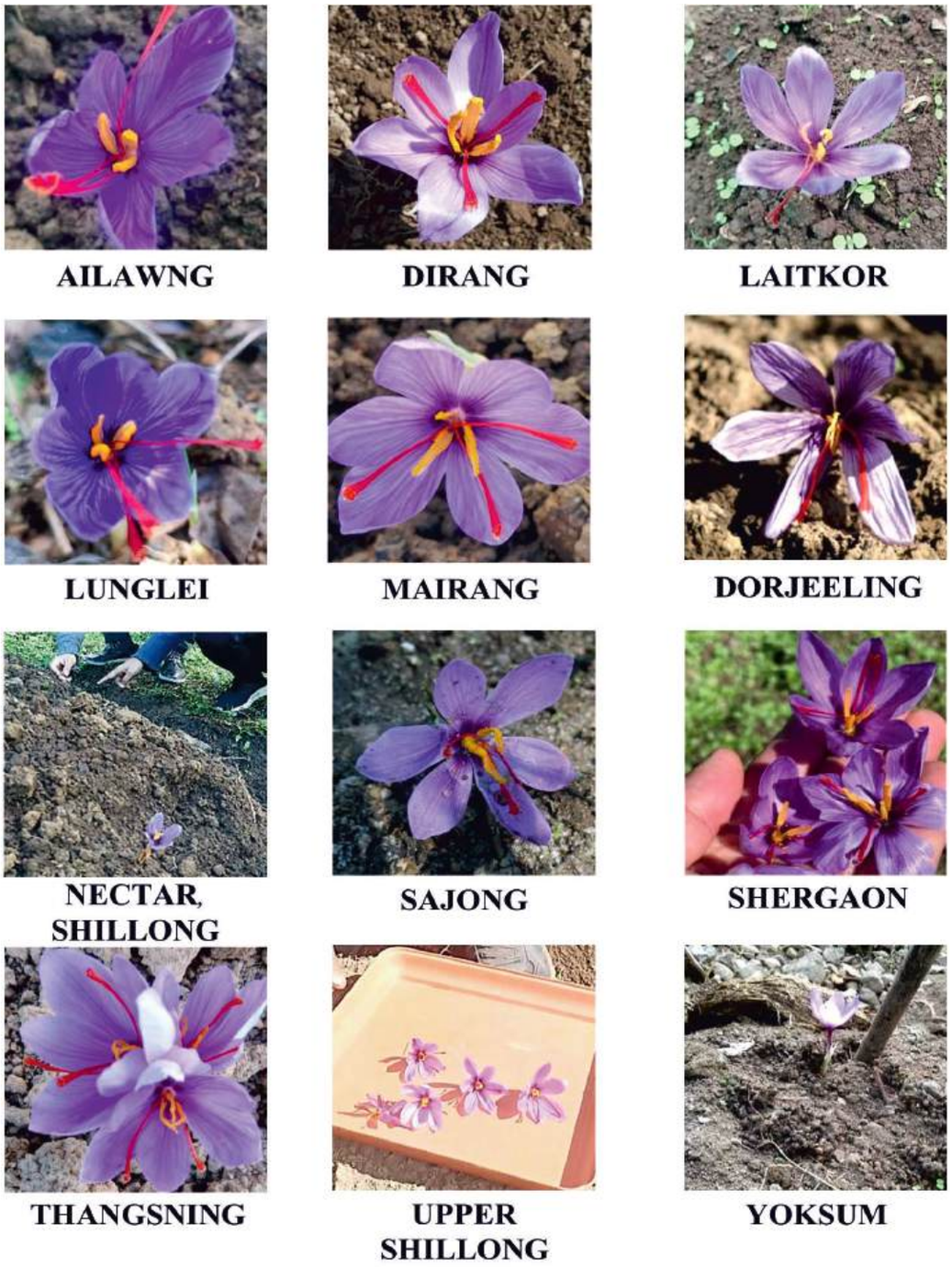


Fig: Saffron flowers from different cultivation sites in the NER

After the successful trial of the pilot project on Saffron Cultivation entitled "Mission Saffron" implemented by NECTAR during 2020-2021, another pilot project (2021-2022) for Saffron cultivation within the North-eastern region of India was planned. A complete survey on the climatic condition, soil quality and other growth parameters, was observed in several regions of the four selected states (Arunachal Pradesh, Meghalaya, Mizoram and Sikkim). A total of 225 kg of saffron corms were transported to NECTAR, Shillong in the month of October 2022 and supplied to the collaborating partner in varied amounts. Approximately, 50 kg of corms were distributed each to the collaborating partner from Arunachal Pradesh and Sikkim, 80 kgs to various collaborating partners in Meghalaya and 20 kgs to Mizoram.

An expert team from Kashmir demonstrated the important steps involved in saffron farming like land preparation and corm planting. After the demonstration, different collaborating partners carried out plantations in the month of October and saffron flowers were harvested between end of October to mid-November. A detailed report from each implementing agency was received in tabular format. From the results obtained it was observed that saffron corms survived in all cultivation sites. Yoksum, Sikkim showed the highest survival rate (100%) while Upper Shillong, Meghalaya showed the lowest survival rate (43.9%). Dorjeeling, Arunachal Pradesh showed early flowering with the first flower blooming on 12/10/2022 compared to other cultivation sites where flowers bloomed during late October or early November. Highest flowering yield was observed in the cultivation site of Umpling (4.22%) followed by Thansning (4%) and Nongshilliang (3.26%) in Meghalaya. Dorjeeling in Arunachal Pradesh, Laitkor and Mairang in Meghalaya showed flowering yield of >2 % while other cultivation sites showed a total flowering yield of <2%. The findings obtained can be fairly good, and mass cultivation of saffron at the places with flowering yield >4% could be suggested, even though the observed flowering percentage is on the lower side given that corms were planted relatively late. Dried stigmas were sent to NECTAR from different collaborating partners which were sent to Food and Drug laboratory, Pasteur Institute, Shillong for testing of parameters such as colour and heavy metal content and the results indicated that the dried stigmas showed no sign of adulteration, and the presence of heavy metals are within the permissible limits. Flowering was followed by a period of vegetative growth which was marked by development of leaves and formation of replacement corms. As we observed that, all the cultivation sites showed multiplication of daughter corms, this is a positive indication that the soil and climatic condition of the cultivation sites are conducive for saffron farming and saffron cultivation in the NER region could possibly be a new venture for alternate livelihood activities of the people of this region.

- **Future perspective**

i. Setting up or collaboration with tissue culture lab for in-vitro corm generation in order to have a continuous supply of corms.

ii. After the successful field trial, harvest and quality assessment, a proper planning and marketing strategies must be developed so that the new region's saffron can be introduced to the market in order to generate income and to improve the livelihood of the farmers.

iii. Establishment of infrastructure such as storage unit and dryer by setting up common facility centre (CFC) to help the farmers in groups with post-harvest facilities.

2. Project on Scientific Beekeeping under NECTAR honey mission mode project

NECTAR has launched a Honey Mission mode project upon successful pilot implementation. Honey Bee rearing activity during the winter season of 2022-23 i.e., November-March 2023 was initiated where in the large scale Bee Colonies were established to rear on migration basis. Mostly Bee foraging area covered over Mustard cultivated zones in various parts of NER. More than 2000 bee colonies were implemented in clusters during the season in few potential districts of North East India. About 3 tons of Honey were produced in the process from these colonies during the season. Training and sensitisation program on scientific bee keeping were provided to 200 local aspirants.

Prior to the mission mode interventions on Bee keeping NECTAR has supported more than 3875 innovative movable and fixed bee boxes to 300 honey growers in Nagaland with training and Skill development programs for scientific Honey Bee Keeping in the state. Nagaland Beekeeping and Honey Mission with the support of NECTAR has established the honey testing laboratory having been inaugurated by the Hon'ble Union Minister of Agriculture & Farmers' Welfare, Shri Narendra Singh Tomar on 27th June 2022. NECTAR has conducted desktop studies on scope of Bee keeping and Honey production in NER and especially from mustard as the crop is practiced in huge acreages in NER. Also, NECTAR conducted a pilot project in Sonitpur district of Assam and Changlang district of Arunachal Pradesh, which produced significant yield of Honey from Mustard floras during November to February; Sesame, Lichi, Maize and Mango etc. from March to June. Many willing and interested groups and community people have come forward to practice bee keeping, it encourages NECTAR to implement bee keeping project in larger level for the benefit of the communities in the regions.

To ensure the smooth operation of the project, NECTAR has empanelled Implementing Agencies and the sites are being taken care by skilled and semi-skilled Bee Keepers. For regular monitoring and reporting, a mobile application has been adopted by NECTAR where real time information is being gathered from time to time.

❖ **ABOUT IMPLEMENTATION SITES**

State	District	Village	No. of bee boxes distributed
Assam	Udalguri	Rowta	300
	Darrang	Gorukhuti	300
	Dhemaji	6 Villages	250
	Lakhimpur	2 Villages	50
	Dibrugarh	6 villages	89
	Baksa	3 villages	135
	Golaghat	2 villages	150
	Karbi Anglong	Nam Bakalia	210
Arunachal Pradesh	Papum Pare	2 villages	120
Nagaland	Phek	Thetsumi	150
Meghalaya	Ri Bhoi	Marngar	100
Manipur	Senapati	2 villages	100

1. Rearing of 300 Nos of bee colonies in cluster mode at Rowta Village in Udalguri district of Assam yielded about 45 quintals of Honey during the winter mustard season. The extracted honey was of satisfactory quality and found to be of multiflora due to presence of other wild variety floras in and around the site.



2. Rearing of 300 Nos of bee colonies at Gorukhuti Village in Darrang districts of Assam with good quantity of honey production from the site. The site is favourable with a good floral count and about 15 quintals of Honey was extracted from these colonies during the winter season till February 2023.


3. Rearing of 250 Nos of bee Colonies in six villages of Dhemaji and 50 Nos in two villages of Lakhimpur districts of Assam, were implemented for sensitisation of village community on benefits of Bee Keeping. Aapproximately 2-3 kg of honey was extracted per box during first 15 days. Overall 12 quintals ofHoney was produced in the season from these village level clusters.


4. 89 Bee colonies in six villages in Dibrugarh district of Assam were distributed at house hold level to harness honey from floras of neighbourhood agriculture and horticulture crops including wild floras. Good quantity of Honey was harvested at individual prospective Bee Keepers in the area.



5. 135 Bee Colonies were implemented in three villages in Baksa District of Assam over large mustard cultivation zones with available of more than adequate floras in the region. The cluster yielded 10 quintals of Honey in the season of 95 days.



6. Rearing of 150 bee colonies in two villages of Golaghat district of Assam foraging mustard flora regions in the nearby locations. The cluster also reported good amount of yield in the season.



7. 210 Bee colonies in one cluster at village No 2 Nam Bakalia in KarbiAnglong district of Assam was implemented. About 25 quintals of Honey was extracted from the cluster as reported by Bee Keeper



8. 120 Bee colonies in two villages of Papumpare district of Arunachal Pradesh were implemented for sensitisation and awareness to local community with Honey production from neighbourhood forest, agriculture & horticulture floras in and around the village clusters. Good yield of Honey from wild flora was reported



9. 150 Bee colonies in the village Thetsumiof Phek district of Nagaland were distributed to implement at own farm level for Bee Keeping Practice and experience under the guidance support of professional Beekeepers in the region.


10. 100 Nos of bee colonies have been successfully installed at Marngar, Ri Bhoidistrict of Meghalaya. The cluster is set up to explore wild floras from neighbourhood forest areas and the site anticipates that the honey production and extraction would also yield favourable results.



11. 100 Bee Colonies distributed in two remote village communities in Senapati district of Manipur for sensitization and awareness of local prospective Beekeepers with harness of Honey from neighbourhood forest floras.


❖ **OUTCOME:**

About 200 beneficiaries in 10 batches were given training on scientific bee keeping in various locations. Awareness and sensitisation program involving local communities and remote village population were conducted through visit of nearest clusters and the benefits of Beekeeping for sustainable livelihood was made as outreach activity under the mission mode project of NECTAR.

Each Clusters of NECTAR implementation site has given opportunity to full time involve of 2-3 local people with a Bee keepers available in district level supervised and monitoring bee keeping during the season. NECTAR further given opportunity to enhance the skill of bee keeping of those villages people in the area by engaging suitable training programs through experts. About 30 prospective beekeepers.

3. Installation of standalone solar dehydrators in NER.

The North Eastern region is blessed with a diverse range of horticultural and agricultural crops of immense quality. The produces are mostly sold in the raw form in the market and others find their way to the processing units for further value addition. Of late, there has been considerable queries and demands for spice commodities especially ginger and turmeric from the region. The buyers/ companies from outside the region and even abroad usually require huge containers, with tonnes of carrying capacity per container on a regular basis per consignment. While the demand and potential are in sync, the supply chain needs to be strengthened. This is particularly true at the farm level where initial primary processing is concerned. Without consolidating these units, the supply chain would be disrupted. Commonly seen in the rural areas, primary processing of ginger and turmeric for instance involve washing, grading, sorting, slicing and drying. Drying is one area of importance where the usual practice is open sun drying which is not only time consuming but also poses a threat to food safety, quality and hygiene. Dehydration is much more effective process than sun drying. There have been tremendous advancements in drying technologies over the years, substituting the usual traditional method which is not only time consuming but also poses a threat to food safety, quality and hygiene. Further, Sun drying could be labour-intensive since it requires covering and moving the items inside overnight and then replacing in the sun the next day. Dehydration prevents all this. Dehydration can be used on any type of food from fruits and vegetables to various meats. It works well every time and contamination is not a concern. Sun drying is recommended primarily for fruits as there is potential of bacteria with other foods.

Different Dehydration equipment and systems differing in shape include the tunnel driers, kiln driers, cabinet driers, vacuum driers, and other forms. The main aim of the design is to abbreviate the drying time, which helps retain the essential character of the food item.

Solar dehydrators on the other hand, are specifically designed to collect and enhance solar radiation. It generates high air temperature and low humidity resulting in faster drying process with less area requirement. However, novel drying technologies have been developed which offer huge advantages over the conventional or solar driers in terms of drying time, capacity, convenience and product quality.

Thus, the problem identified led to the proposal to install a Dehydrator to replace the open sun drying and that the dehydrator to operate on solar energy but with a backup heating system in case of unfavorable conditions prevails in NER. With the improved quality product being produced as a consequence to this, the value is also expected to be more, and returns are higher since the product losses are minimized.

NECTAR is implementing a project to address the food preservation challenges in the North Eastern Region (NER) by installing 15 standalone solar dehydrators in Meghalaya, Mizoram, and Nagaland. The conventional practice of open sun drying is time-consuming and poses risks to food safety and hygiene. The solar dehydrators offer significant advantages in terms of drying time, capacity, convenience, and product quality. The project aims to enhance food preservation techniques and improve food safety in the region. Through the project, SHGs, FPOs, FPCs and individual farmers will be benefitted as the dehydrators are being installed at their field/ premises. The dehydrators are being installedin the following areas as mentioned below:

State	District	Village	No of units
Meghalaya	West Jaintia Hills	Shangpung	2
		Mawkaiaw	2
		Mootyrshiah	3
	Ri Bhoi	Nongsder	2
Nagaland	Wokha	Baghty	2
	Peren	Old Tesen	2
Mizoram	Khawzawl	Kawkulh	2

- **Proposed location for installation of 2 nos driers at Peren district, Nagaland**

- **Proposed location for installation of 2 nos driers at Wokha District, Nagaland**

- **Proposed location for installation of 2 nos driers at Ri Bhoi district, Meghalaya**

The capacity per drying batch is about 100 Kg & above. Although the expected product outcome is circled around the dried Ginger, turmeric slices and other spices as the main products but considering the suitability & flexibility of application of the solar dehydrators, other products can be dried as well be they fruits, vegetables or other spices.

4. Pilot Demonstration of the Hydraulic Ram Pump at Jaintia Hills District, Meghalaya

NECTAR had implemented a hydraulic ram pump project on pilot mode at Nartiang village, Jaintia Hills District, Meghalaya in collaboration with Sh. Justman synrem whose innovation is being implemented and Roilang Livelihood Academy, Shillong. The project's goal is to empower the local economy by providing an alternative means of irrigation to meet the various agricultural needs of the community.

The ram pump uses the kinetic energy of water flowing in a driver pipe to pump up water at the adjacent farms where she cultivates crops like cabbages, mustard, potatoes, tomatoes, chili, brinjal, cucumber, etc. The installation of the ram pump has brought significant innovations to agricultural production systems and has motivated fellow farmers in and around the village village and neighbouring areas to adopt technology-led agriculture for enhanced income and sustainable livelihood. The pilot project aims to empower the local economy by providing an alternative means of irrigation to meet the various agricultural needs of the community, develop a technology that uses renewable sources of energy, ensuring low running costs and devise a technology that has no environmental impact.

Outcome of project: Water is drawn from a nearby stream and collected in a water reservoir. The outlet pipe leaving the pump has a diameter of ¾". The pipe size is further reduced to ½" to maintain the pressure carrying the water to the target agricultural plot, 256' away from the pump. The level difference between the pump and the elevated agricultural plot is 18' approximately. During the lean season, the discharge measures 10 litres per minute.In summary, the installation of the ram pump at Niriang village has provided an alternative means of irrigation, uses renewable sources of energy, uses low running cost and has no environmental impact. The innovator is also in process of installing five more at different locations in Arunachal Pradesh and Mizoram.

Fig: Installation of ram pump at beneficiary's farm at Niriang village

In summary, the installation of the ram pump in Niriang village, West Jaintia Hills District, has provided an alternative means of irrigation to meet the various agricultural needs of the beneficiary, uses renewable sources of energy, ensures low running costs, and has no environmental impact. The project has led to increased crop yields, improved livelihoods, and has empowered the local economy in the area. It is important to note that the maintenance of the ram pump should be performed by trained technicians who have knowledge of the design and operation of ram pumps. This will ensure

the long-term effectiveness of the system and continued benefits for the farmers in Niriang village that will empower the adjacent villages and the state as a whole to install more ram pump. This will also enhance the livelihood income of the farmers and the state as a whole.

5. Production initiatives/technologies on implementation of Cow Dung based ecofriendly pots & allied products.

An inhouse project on making eco-friendly cow dung pots for nursery was initiated by NECTAR in Dharitree Nursery, Sonapur, Assam. The project was inaugurated on 17th August 2022 by DG, Nectar and officials from Forest department, Guwahati. Two types of Cow Dung based ecofriendly pots (3 inch and 5 inch) were developed. In addition to Cow dung Pots, Cow dung Diya's were also developed. More than 1000 Cow dung Diya's were made and sold before Diwali. The Cow dung pots and Diya's were also exhibited in the India International Trade Fair-2022. It is proposed to take up the project on a larger scale in different states on Northeast in collaboration with the respective state Horticulture and Forest departments.

Fig: Inaugration of manufacturing facility of project by DG, NECTAR alongwith display of few finished product samples.

CHAPTER - 6

EXTERNALLY FUNDED PROJECTS

NECTAR has received sanctions of external funding support for implementation of following five major projects –

1. PM- DevINE project entitled NECTAR Promoting Scientific Organic Agriculture in NE India for the implementation of Organic Farming in states of Assam, Meghalaya, and Tripura.

NECTAR had made a project proposal entitled, "Promoting Scientific Organic Agriculture in North-East India using improved farming technique and digital data management through capacity building of farmers and facilitating certification" to the Ministry of Development of North Eastern Region (MDoNER) under the PM-DevINE scheme & the same has been considered by the ministry for funding. The project intends to create a corpse of 250 Master Trainers & a pool of 25,000 trained farmers from different states of NER by developing their skills through the development of localized farm labs, facilitating organic certification, & market linkage through a digital architecture.

Fig: Meeting held between NECTAR officials with PORI and officials from ICAR-IIFCR Modipuram and also visit to BRDC, Shillong and organic outlet at Manipur

Until now, two empowered committee meetings were held under the chairpersonship of the Secretary, Ministry of DoNER, and as the committee recommended, the proposal has been assessed and vetted by Institutions of repute such as the ICAR, NIT, and IIM, also the suggestion by the Ministry of Agriculture to converge the project with the existing MOVCDNER Scheme is taken into consideration. In this regard, a letter of intimation to all the chief secretaries of northeastern states is already being sent. The Administrative and Financial sanction has been received from Ministry of DoNER in the month of February 2023. NECTAR officials had made visits to ICAR- Indian Institute of Farming Systems

Research (IIFSR), Modipuram and Bio Resource Development Centre (BRDC), Meghalaya to interact with experts in the field of organic agriculture.

- **Project implementation States:** The initial implementation will be in Assam, Meghalaya & Tripura. Other states of NE may be covered at a later stage.
- **Project Objectives**
  - Create a corpus of 250 Master Trainers mainly from the three states of Assam, Meghalaya & Tripura by developing their skills in all major aspects of organic farming with hands-on and on-ground training relevant to their crops of interest, agro-climatic condition, socio-ecological status, and agro-ecological traditions.
  - Facilitate the Master Trainers to carry out demonstrative organic farming in farm labs in their own geographical areas by providing technical guidance.
  - Create a pool of 25,000 trained farmers from these three states with enhanced information, knowledge, and skill with proper market linkage
- **Current Status**
  - Formation of an Expert Group as per the AFS with experts of NECTAR, representatives of other central organizations located in NER, representatives of State Planning and Finance Departments and other members as considered necessary.
  - Recruitment of Contractual Manpower.
  - Setting up of demonstrative farm lab & training for the farmers in collaboration with technical partners such as Bio Resources Development Centre (BRDC), Meghalaya State Rural Livelihood Society (MSRLS) Patanjali Organic Research Institute (PORI), etc.
  - Technology Transfer for 'Soil Organic Carbon Detection Kit' with Bhaba Atomic Research Centre (BARC)
  - Development of a dashboard-based management information system for real-time monitoring
  - Establishment of Seed Bank and Soil and pesticide lab
  - Organic Certification

2. PM- DevINE project entitled NECTAR livelihood Improvement project (Multi State) – A Value Chain on Utilization of Banana Pseudo Stem for Value-Added Products in various locations of North East

The Union Cabinet chaired by honourable Prime Minister has approved a new scheme, i.e., Prime Ministers Development Initiatives for the North East Region (PM-DevINE) for four years of the 15th Finance Commission from 2022-23 to 2025-26. This new scheme is a central funded scheme with 100% central funding and will be implemented by the Ministry of Development of North East Region (MoDoNER) and it was announced by honourable finance minister Mrs. Nirmala Sitharaman during her budget speech during financial year 2022-23. This is scheme is aimed at rapid and holistic development of the North-East Region by funding infrastructure and social development projects, based on actual requirement of respective States. It will strive to fill the gaps in various sectors and will not be a substitute for existing Central and State Schemes. The PM-DevINE Scheme will have an outlay of Rs. 6,600 crores for the four years and efforts will be made to complete the projects by 2025-26 so that there are no committed liabilities beyond this year.

The objectives of PM-DevINE are –

- To Fund infrastructure convergently, in the spirit of PM GatiShakti
- To Support social development projects based on felt needs of the NE
- To Enable livelihood activities for youth and women
- To Fill the development gaps in various sectors.

Under the 3rd objective of PM-DevINE scheme, North East Centre for Technology Application and Reach (NECTAR), an autonomous body under Department of Science & Technology, Govt. of India received fund to implement the project **"NECTAR livelihood Improvement project (Multi State) – A Value Chain on Utilization of Banana Pseudo Stem for Value-Added Products"** at an outlay of Rs. 67 Crore. The outcome of this project is related to local livelihood generation as well as taking the product output to the global market through proper market linkage(s).

Fig: Baseline field survey during initial phase of project implementation

- **Project Objectives and Deliverables:**

  - To implement Common Facility Centre (CFC) in 12 locations in NE Region for production of various value added products
  - Extraction of fibre from banana pseudo stem and preparing nonwoven fabrics and various handicrafts items.
  - Preparation of Novel organic liquid nutrient using banana pseudo stem sap.
  - Edible items preparation using central core of banana pseudo stem.
  - Various types of paper from banana fibre.
  - To generate rural employment, provide alternative / supplemental eco-friendly raw material to textile, paper, pharmaceutical, fertilizer and confectionary industries.

- **Project Locations:**

  - 6 locations (districts) in Phase-I – East Siang (Arunachal Pradesh); Boko (Assam); Ri-Bhoi (Megahalaya); Kolasib (Mizoram); Kohima (Nagaland) and Agartala (Tripura).
  - 6 locations (districts) in Phase-II – Kokrajhar, Kamrup and Nalbari (Assam); Churachandpur (Manipur); Wokha (Nagaland); Khowai (Tripura).

- **Economics of Fiber Extraction:**

Based on the work done in different places of the country years, the cost of fiber extraction from pseudo stem has been worked out. Considering the fiber yield and its selling price, farmer scan realizes an additional net income. Apart from monetary benefits, fiber extraction technology also generates employment in rural areas. During the process of fiber extraction, four components are obtained simultaneously. These components are fiber (about 600 kg/ha), scutcher (30 to 35 t/ha), sap (15000 to 20000 l/ha) and central core (10 to 12 t/ha). In the present project, using each component variety of value-added products must be developed in the plant.

- **Fiber Based Products**:

Fibers extracted from banana pseudo stem can be used for developing different value-added products. As such banana fibers being course, it is not possible to spin these fibers on conventional spinning system. As the properties of banana fibers resemble to some extent with jute fiber, it was tried to spin the banana fiber on jute spinning system at Gloster Jute Mills, Kolkata. Numbers of processes were followed to protruced fibers and making the fabrics smooth as well as soft. Synthetic leather is also prepared which can be used as sofa cover, car cover, school bags etc. The fabrics prepared were also dyed and tested for quality parameters. In addition to these efforts, for improving pliability of banana fiber, 10% jute fibers were mixed, and yarn was prepared. There is a possibility to develop different products using this yarn (90:10 banana: jute).

Along with these, with advanced indigenous technology available with us other products that can be extracted from banana pseudo stems are:

a. **Microcrystalline cellulose (MCC):** The techno-economic feasibility of using MCC extracted from banana fiber is widely used in pharmaceutical industry and having economically viable.

b. **Scutcher Based Products:** Huge quantity of scutcher (about 30 to 35 t/ha) is generated during fiber extraction. To utilize this scutcher in proper way, process for preparing following value-added products has been standardized.

c. **Vermi-compost:** Process has been standardized for vermicompost preparation using pseudo stem scutcher and dungs. It has been found that vermicompost with scutching waste and cow dung in the ratio of 70:30 is ideal in terms of nutrient content.

d. **Organic manure:** Experiments as well as demonstrations are being conducted at farm and farmers' fields, respectively on various crops like sugarcane, banana, papaya, ginger etc. using scutcher based vermicompost. Based on the 2 years (2009-10 and 2010-11) pooled results, pseudo stem based vermicompost was found comparable with FYM and bio-compost in banana as well as sugarcane.

e. **Fish feed:** An innovative experiment is being conducted to explore the feasibility of blending vermi compost with fish feed. The results of first year have revealed that the routine fish feed (cattle feed) can be substituted by vermi-compost up to 30% without any reduction in body weight of fish.

f. **Sap:** Earlier reviews have indicated that sap has found to contain fair amount of nutrient in it. About 15000-20000 liters of sap can be extracted from one hectare of Pseudo stem.

g. **Liquid fertilizer:** Sap extracted from pseudo stem was evaluated as liquid fertilizer through filed experiments for 2 years in crops like banana, papaya, sugarcane etc. The pooled results indicated that with the application of sap saving of about 20-40% RDF could be achieved without affecting the yields of banana and sugarcane.

h. **Nutrient spray solution:** Trials have been conducted using sap as a nutrient spray in vegetable nurseries (brinjal and chilies) under greenhouse conditions. The results indicated that spraying of either enriched sap +vermibed wash (1:1) on vegetable seedling resulted in achieving early transplantable stage by 8 to10 days as compared to no spray.

i. **Mordant:** At ICAR-CIRCOT Mumbai, trials were conducted for using sap as mordant in textile dying. Laboratory scale trial has been completed to test sap as mordant with natural dyes like manjistha and annatto. The test results have indicated good fastening properties of these dyes when used with sap. This is one of the innovations attempted in the project and the process for using sap as mordant has been standardized.

j. **Central Core:** Central core is inner most tender portion of the pseudo stem which is edible. About 10 to 12 T/ ha central core can be obtained.

k. **Candy:** The process for developing candy has been standardized and pilot-scale production is in progress. The product developed has been tested for its nutrition al parameters at CFTRI, Mysore. Until 2022, 1,000 kg candy of different quality and flavor has been prepared and distributed. This candy has an additional advantage as it contains iron and vitamin (B3 & B5) in appreciable amount.

l. **Core Powder:** Pseudo stem central core contains high amount of digestible fibre as well as iron & potassium. Cabinet drying or solar drying can utilize to make it powder. This powder can blend with any flour to make it fiber fortified flour.

m. **Pickles:** Pickle preparation by blending of central core with fruits and vegetables are being standardized. Shelf-life study has been completed and quality testing is under progress.

This project has a capacity to generate rural employment, provide alternative/supplemental eco-friendly raw material to textile, paper, pharmaceutical, fertilizer and confectionary industries. A farmer growing banana can realize an additional income of Rs. 1,00,000 to 1,30,000 per ha per annum from fibre, sap and vermicompost preparation on annual basis. In a nut shell, this project has shown a new path for generating wealth from waste in a most eco-friendly way and the income sharing among the farmers, entrepreneurs, industries, and end users as well. Through this project,

as far as the North Eastern Region is concerned, it is targeted to benefit around 56% STs, 4.25% SCs and 48.97% women taking into consideration the statistics as per census data made available. It will generate all round sustainable development in all NE states through direct and indirect employment.

3. Project from SEED division of DST for "Improving Sustainability of Traditional Terracotta and Pottery Business in Asharikandi village" under Scheduled Caste Sub-Plan scheme.

The riverfront of Gadadhar River cradles the largest hub where traditional terracotta and pottery crafts thrive side by side. This haven, known as Asharikandi, lies within the Debitola development block in Dhubri District, Assam, India. Asharikandi boasts a unique terracotta style, upheld over time. Its fame springs from the age-old technique of crafting Terracotta and Pottery. The essence of this craft lies in the soil named HIRAMATI. Despite the village's rich history and the abundance of clay along the riverbank, the Asharikandi-style terracotta art is dwindling rapidly. The primary cause is the labor-intensive and health-risking nature of the traditional pottery process, worsened by inadequate compensation. The toil of traditional clay processing and the adverse effects of open firing methods have deterred the younger generation. The firing process itself releases harmful substances, dissuading youths from embracing this ancient tradition and steering them towards more rewarding alternatives.

Fig: Entrance towards Asharikandi Pottery Village in Dhubri District, Assam.

To address these challenges, a pilot project titled "Improving Sustainability of Traditional Terracotta and Pottery Business in Asharikandi" was initiated by NECTAR, in collaboration with Development Alternative Group (DAG) and North-East Craft and Rural Development Organization (NECARDO), an NGO in Dhubri, Assam. This project aimed to modernize and strengthen the existing traditional craft practices.

Several technological interventions were introduced:

a. The arduous clay preparation process was streamlined using a de-airing Pug Mill, reducing the time from days to just hours.

b. Traditional wood-fired kiln firing time was slashed from 72 to 24 hours, with a rejection rate below 1%, significantly improving product quality.

c. Innovations like Jiggar jolly and molds sped up Kulhad production, enhancing productivity.

d. Overall production efficiency surged nearly eightfold, accompanied by improved product quality, better artisan health, and reduced drudgery.

e. Clay expenses were reduced, contributing to cost savings.

f. The firing process was extended throughout the year due to enhanced techniques, resulting in increased teacup production.

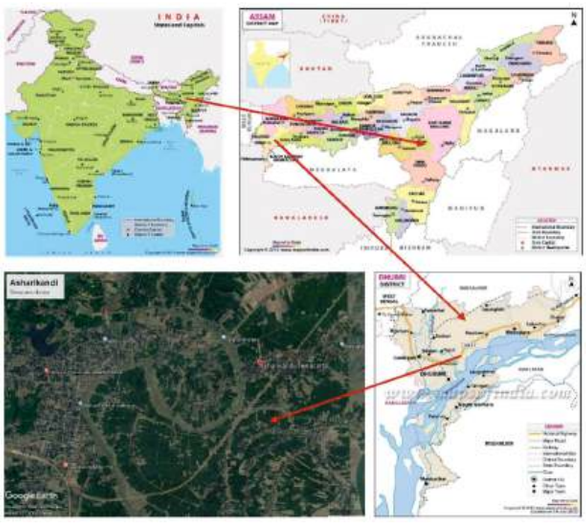


Fig. Location of Asharikandi terracota cluster in Assam

A Community Facilitation Centre (CFC) was established in the village, housing the new machinery for artisans' use. The success of this pilot project motivated more villagers, particularly the youth, to adopt innovative methods and rejuvenate their interest in the craft. Taking this triumph forward, NECTAR submitted a project proposal titled " Improving Sustainability of Traditional Terracotta and Pottery Business in Asharikandi " to the SEED Division of the Department of Science and Technology, Govt. of India. The proposal was endorsed for a two-year period. As part of the SEED project, the following activities were undertaken:

1. CFC and Machinery:

a. Construction of three CFCs equipped with modern machinery to replace manual labor.
b. Introduction of customized machinery like De-airing Pug mill, Wood-fired kiln, Hydraulic press tile-making machine, etc., upgrading pottery techniques.
c. Replacement of ergonomically incorrect postures and harmful firing methods with pugmills and kilns for improved health and environmental outcomes.

Fig. Installation and operation of de-airing pugmill and wood fired kiln at Asharikandi Cluster

Fig: Omkareshwar SHG CFC, Terracota Society CFC & Fig. Shnati SHG CFC

2. **Skill Development:** Basic and advanced training provided by TARA-Technology and Action for Rural Advancement (TARA), a part of the Development Alternative Group, NECTAR's technology partner, enabling artisans to adapt to modern machinery.

Fig. Training provided by TARA NGO

3. Marketing:

a. Creation of an Asharikandi pottery products catalogue.
b. Facilitation of e-marketing training through MarketMirchi, allowing artisans to sell online.
c. Participation in cultural exhibitions for exposure.
d. Development of market linkages, starting with distributing Kulhads in Assam State offices.
e. Organizing of a Craft Mela to promote the art.
f. Expansion of product lines based on market demand.

Fig. Participation in Lokmanthan,2022 Event at Guwahati

4. Soil Testing: Technical assessment of clay samples from Asharikandi to determine suitability for pottery.
5. Eco-tourism and Educational Excursion:
   a. Potential development of Asharikandi as an eco-tourism hub.
   b. Guided tours for tourists to experience traditional craftsmanship and engage with artisans.
   c. Craft Mela for students to learn and participate in pottery.
6. Outcome: The integration of machinery brought unprecedented benefits to the terracotta community, enhancing productivity, and leading to economic growth. This success story has inspired neighboring villagers to adopt these advancements. The artisans' improved quality of life and their products' global demand underline the enduring value of terracotta and pottery.

Fig: Few clay products from Asharikandi Cluster

4. Project entitled Formation and Promotion of Farmer Produce Organisations as Custer Based Business Organisations under Central Sector Scheme under Ministry of Agriculture and Farmers Welfare, GOI

In an earnest effort to enhance the agricultural landscape and enhance the lives of farmers, a significant initiative titled the "Formation and Promotion of 10,000 Farmers' Producer Organizations (FPOs)" is in motion. This ambitious endeavor is orchestrated under the Central Sector Scheme (CSS) of the Ministry of Agriculture and Farmers's Welfare, GOI, with NECTAR taking lead as the Cluster Based Business Organization (CBBO). The crux of this initiative lies in uniting small, marginalized, and landless farmers into cohesive groups, fortifying their economic resilience and establishing stronger market linkages to elevate their overall income. NECTAR's role in this initiative is pivotal, encompassing vital support in areas such as mobilization, registration, business planning, and operational guidance. As the CBBO, NECTAR is committed to nurturing active engagement and participation among farmers within these FPOs.

In the fiscal year 2022-23, NECTAR set out to establish 21 FPOs, strategically allocated across 25 blocks within 7 districts of Arunachal Pradesh. The primary focus of these FPOs revolves around promoting agricultural and horticultural commodities, with a keen emphasis on exploring diverse marketing avenues. This endeavor not only seeks to enhance the prosperity of farmers but also contributes to the broader advancement of the region.

- **Addressing Ongoing Challenges**

  The agricultural landscape in the region grapples with ongoing challenges that necessitate targeted interventions. The issue of market price fluctuations looms large, resulting in inadequate and unjust prices for farmers' produce. Additionally, the struggle to access suitable markets remains a significant obstacle. Bridging the technology knowledge gap is essential, as farmers lack awareness of contemporary agricultural practices. Limited resources and financial access hinder growth, and financial vulnerability often leads to distress sales. Inadequate post-harvest storage facilities and a lack of value addition knowledge contribute to losses. Economic opportunities are deficient, driving youth migration. Inadequate access to social services compounds rural challenges, and risk aversion among economically weaker populations adds complexity.

- **Strategic Aims**

This initiative harbors transformative goals to empower farmers through Farmers' Producer Organizations (FPOs). Institutionalizing agricultural production at the block level is a core objective, enhancing economic influence. Sustainable farming practices are promoted through organized and clustered cultivation for increased production and economic development. Establishing market and financial connections is crucial, and the initiative seeks to involve women farmers for positive livelihood changes. The overarching aim is to capacitate farmers with skills and knowledge within a specified timeframe, promoting self-sufficiency.

- **Strategic Interventions**

A comprehensive set of interventions is designed to realize the strategic aims. Mobilization and awareness initiatives engage farmers in FPO formation. Collaborative business planning guides FPO operations, while enhanced agricultural inputs boost production. Modern agricultural training imparts skills, and grassroots institutional capacity building strengthens FPO management. Financial access through bank linkages bridges credit gaps. Infrastructure for product aggregation and storage is created, along with value addition facilities. Skills enhancement, exposure visits, and strategic marketing approaches further empower farmers.

- **Farmer Producer Organisations: Catalysts for Change**

FPOs address existing agricultural challenges and act as catalysts for transformative change. They inject life into rural economies, bridge technology gaps, provide financial empowerment, and mitigate infrastructure challenges. FPOs amplify agricultural production and enable value addition, while also equipping farmers to navigate complex markets effectively. Their holistic impact reverberates through multiple dimensions, fostering prosperity and sustainable development.

- **Strategizing FPO Formation**

The establishment of FPOs follows a well-structured strategy. It begins with identifying potential villages, engaging farmers through awareness programs, and initiating FPO registration. Enhancing FPO capacities through training and support services is a priority. Exposure opportunities and sustained support are provided, along with knowledge dissemination. Robust market linkages and value chains are established for sustainable success.

- **Cluster Selection Rationale**

Cluster selection is guided by meticulous analysis, considering income potential, empowering women farmers, agro-climatic suitability, progressive farmer participation, and promising crops. The chosen clusters in Arunachal Pradesh is spread across 7 districts and aligns harmoniously with the proposed crops, ensuring successful cultivation and meaningful outcomes.

- **Cultivating Potential: Targeted Crops for FPO Formation**

A brief overview of the crops identified for Farmers' Producer Organizations (FPOs) formation across different districts is shown in the table below. These targeted crops are strategically chosen to align with the unique agro-climatic conditions of each district, aiming to boost agricultural productivity and economic growth in the region.

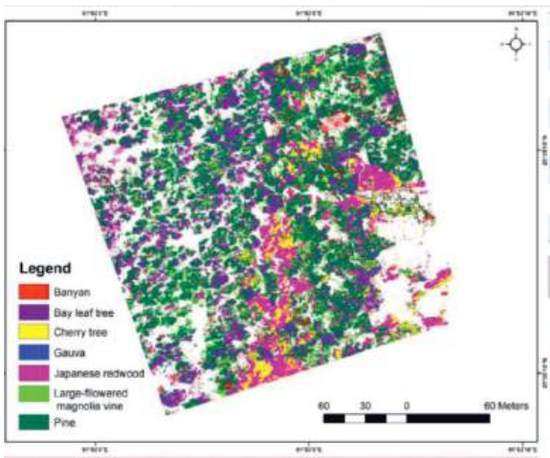
District	Targeted Crops
Changlang	Arecanut, Vegetables, Ginger, Large cardamom, Black pepper, Potato, Turmeric
East Kameng	Maize, Millets, Soybean, Ginger, Potato, Orange
Kamle	Orange, Ginger
Namsai	Ginger
Siang	Ginger, Turmeric, Millet, Orange, Black turmeric, Chili
Tirap	Millet, Vegetables, Summer potato, Maize, Ginger, Turmeric

In conclusion, NECTAR's visionary FPO initiative promises to revitalize agriculture, empower farmers, and usher in a new era of economic progress for the North East region. Through strategic interventions and focused efforts, the initiative is poised to overcome challenges, empower farmers, and cultivate a sustainable and prosperous future for all.

Fig: Awareness cum sensitaisation programme at different district in Arunachal Pradesh for FPO formation

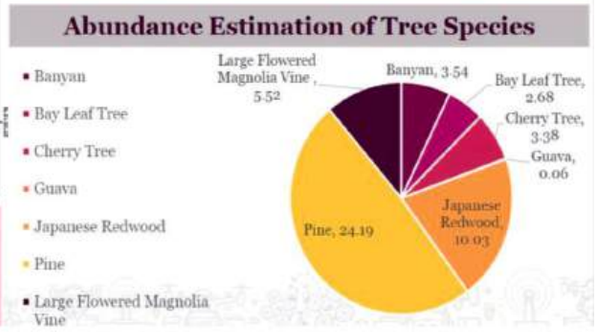
5. Project for Forest Survey and Mapping for Meghalaya Using UAV to Analyze Carbon Financing and Phyto-diversity Heat Map from Meghalaya Biodiversity Board

The project Forest Survey and Mapping for Meghalaya Using UAV to analyse Carbon Financing and Phyto-diversity Heat Map of the State has been received from the Meghalaya Biodiversity Board (MBB), Government of Meghalaya. Under the project, Airborne/Drone based surveys using the RGB, Hyperspectral and LiDaR sensors to be carried out in the 633.76 sq km of reserved forest areas for the lean season and bloom season. Based on the drone surveys, carbon sequestration and phyto diversity studies will be carried out for both the seasons. For the lean season, drone/Aerial survey is already finished and calculation for the phyto diversity map and carbon sequestration is under process. The project outcome from the study through aanalysis of forest density, vertical structure, and fuel analysis, Biomass Estimation, Tree Cover Analysis (Structural Analysis), Species Identification, Crown cover or canopy density estimation, Carbon Sequestration Analysis, Trees health (vigour and stress), Carbon Financing, Biodiversity Heat Map etc shall be done. Once completed this project will be first of its kind in India which uses modern technologies for mapping the biodiversity of the forests.



Technique used for classification: Artificial Neural Network (ANN)
Overall Accuracy = 82.12%
Kappa Coefficient = 0.60
Number of layers = 2

S. No.	Tree Species	Abundance (%)	Area Occupied (m2)
1.	Banyan	3.54	2,553.73
2.	Bay Leaf Tree	2.68	1,933.28
3.	Cherry Tree	3.38	2,442.56
4.	Guava	0.06	42.32
5.	Japanese Redwood	10.03	7,221.37
6.	Pine	24.19	17,465.67
7.	Large Flowered Magnolia Vine	5.52	3,984.74



6. Project Assistance for Certified Fodder Seeds Production & Distribution under National Livestock Mission

The Government of India's Department of Animal Husbandry and Dairying has sanctioned a project for the financial year 2022-23 under the National Livestock Mission scheme. The project aims to assist in the production of quality fodder seeds and has appointed NECTAR as the implementing agency, with the Central Agricultural University (CAU) in Imphal, Manipur as the collaborating partner responsible for its execution in Manipur. The class of fodder seeds to be produced under this project includes Cowpea, Maize, and Napier Hybrid, or any other suitable variety as deemed appropriate.

The project's key objectives are threefold. Firstly, it seeks to establish an effective seed production chain for quality fodder seeds. Secondly, it aims to provide capacity building and training to state functionaries and livestock owners in the areas of forage production, conservation, and utilization. Lastly, the project aims to foster convergence and synergy among existing Plan programs and stakeholders to promote the development of fodder resources.

A total fund of Rs. 2 crores has been allocated for the project. The project's first installment of Rs. 50,00,000 has already been released. The target is to benefit 200 farmers, and a total area of 200 acres will be cultivated with the fodder seeds.

The responsibility for organizing the production and supply program within the state of Manipur falls on Central Agricultural University, Imphal, in the districts of Chandel, Imphal West, and Bishnupur. CAU will procure certified fodder seeds, including Cowpea (EC-4216) and Maize (African Tall), through a Memorandum of Agreement (MoA) with either the National Seed Corporation Agency, State Seed Corporation Agency, or any reputed private seed agency, based on the quantities required and as directed by the Department of Animal Husbandry and Dairying. CAU will also maintain detailed records related to the list of farmers, their registration numbers with the Seed Certifying Agency, farmers' names, villages, post offices, districts, states, areas of seed production, approved targets, and more. Furthermore, CAU, in collaboration with NECTAR, will oversee the quality testing of seeds, seed germination reports, and all other relevant activities related to the project.

CHAPTER - 7

SUCCESS STORIES

1. Yoga Mat made from Water Hyacinth

Implementing Agency: - Simang Collectives Pvt. Ltd.

NECTAR has taken up a project titled "Technology intervention and upgradation in Biodegradable Yoga Mat production" with Simang Collectives Pvt. Ltd, a social enterprise from Guwahati. The aim of this project is to promote production and use of natural fibre-based eco-friendly yoga mats made from locally available water hyacinth. In this project, fiber extracted from water hyacinth is woven on the traditional Assamese Loom, in different combinations of techniques, materials and tools to achieve a high quality 100% biodegradable and compostable Yoga Mat, which offers great comfort to the users.





- **Outcome and People Benefited: -**

  With NECTAR's technological intervention, the process of drying of water hyacinth fiber is mechanized using appropriate drying technology. Through this project, NECTAR has also upholded the message of 'Vocal for Local' by enhancing capacity and confidence of the local artisans, mainly women and girls of weaker sections such as schedule caste. This project has provided direct liveable continuous employment to up to 70 women from the indigenous community of Deepor beel Wildlife sanctuary, a famous wetland designated as a Ramsar Site located near the Guwahati City. The villagers are now able to produce 1,000 handwoven yoga mats made of water hyacinth per month. The benefits from this project have provided them with alternative sources of livelihood and thereby reduce the pressure on the resources of the wetland, which has helped in conservation and sustainable management of the wetland and its ecosystems. The project has also created the scope of converting waste to wealth.

Number and details of Beneficiary	**Direct**	**Others**	**SC**	**ST**	**OBC**
		20	0	0	0
	Indirect	**Others**	**SC**	**ST**	**OBC**
		0	70	0	0

2. Terracotta and Pottery Business in Asharikandi

Implementing Agency: - NECTAR as proposer and DAG as IA of the project

Asharikandi (Madaikhali) village in Assam's Dhubri district is renowned for its thriving Terracotta and Pottery craft, where 130 families of artisans, including both men and women of all ages, produce a fascinating range of terracotta and pottery items. The craft's uniqueness lies in the abundant availability of special soil called HIRAMATI, the traditional skills of the Kumbhakaras (potters), and the advantageous location along the river Gadadhar, a tributary of the Brahmaputra, allowing easy transportation and access to major markets. The village's identity is characterized by the Asharikandi-style of Terracotta, recognized for its innovative and artistic designs. Notably, Late Sarala Bala Devi was honored with the prestigious National Award on Terracotta craft in 1989 for her outstanding creation, the HATIMA doll, which brought significant acclaim to Asharikandi's Terracotta craft. However, despite its age-old tradition, the craft faces challenges in the present generation due to factors like drudgery in manual aging of clay, slow hand-shaping processes, and outdated firing kilns. To address these issues, NECTAR, under the Department of Science & Technology, Government of India, conducted assessments and proposed technology interventions, including setting up a centralized clay processing facility with pug milling for improved workability, mechanized molding practices for higher productivity and consistent quality, and modern firing kilns with proper insulation and heat circulation for enhanced firing efficiency.





Asharikandi village's Terracotta and Pottery craft, renowned for its unique HIRAMATI soil and skilled Kumbhakaras (potters), faces challenges that hinder its sustainability and attractiveness as a profession for the younger generation. NECTAR's intervention assessed and proposed solutions to overcome these challenges. One significant issue is the manual aging of clay, leading to low productivity and defects in the final products. To address this, a centralized clay processing facility with pug milling is planned to supply processed clay to individual molding units. Additionally, the slow hand-shaping processes affect productivity and consistency in quality. To improve this, mechanized molding practices are being introduced for simple or regular items. Furthermore, the traditional firing kilns lack proper insulation, affecting firing efficiency. To address this, a closed chamber with proper insulation and an effective heat circulation design has been installed. These technology interventions aim to revitalize the traditional Terracotta and Pottery craft in Asharikandi, enabling it to thrive in the face of modern challenges and retain its cultural significance while offering sustainable livelihood opportunities for the artisans.

- **Outcome and People Benefited: -**

  The collaborative initiative with NECTAR has resulted in significant improvements in firing quality and fuel efficiency, leading to reduced operational costs and increased profitability. The fired products now exhibit better quality, evident from their characteristic color and sound. The effective firing cycle time has been reduced to just 22 hours, compared to the conventional 72 hours, allowing for almost three times more firing cycles. As a result, the operating cost has significantly decreased to Rs. 3600 per cycle, compared to the conventional cost of Rs. 6000, resulting in a remarkable 50% reduction in production expenses. This cost benefit analysis has further demonstrated an impressive annual profit margin increase of over 4.5 times per cluster. Moreover, the positive impact on the environment is evident, with the technical intervention leading to the conservation of approximately 1386 tonnes of wood and a subsequent reduction of 2495 tonnes of CO2 emissions in the environment.

Number and details of Beneficiary	**Direct**	**Others**	**SC**	**ST**	**OBC**
		0	0	0	1000
	Indirect	**Others**	**SC**	**ST**	**OBC**
		0	3000	0	0

3. Preserving the ancient art of Charei Taba of Manipur

Implementing Agency: - Riptrip,Manipur

NECTAR has supported an initiative by Ms. Padmini, proprietor of Riptrip, Manipur to turn 'Charei Taba' form of Pottery into an enterprise through technology intervention, The main objective of the project is to strengthen trade in cultural goods by organizing and converting this art into an enterprise offering sustainable livelihood will provide employment opportunities for decent work and promote local production. Cultural policies that promote preferential treatment in trade for locally produced goods contribute to reducing inequalities within and among countrie). Traditional arts and crafts have an obvious correlation with climate action since it's all about natural resource extraction and local materials.

Innovation & technology intervention will improve output with a minimal technology intervention i.e by mechanizing the complete process. Also, it will help maintain the quality, reliability and thus making it profitable, boosting economic development and human well-being. Thus an ecosystem promoting green economy Promote and support the use of eco- friendly biodegradable products will be created.

- **Outcome and People Benefited: -**

Due to the technological interventions and mechanization with the support from NECTAR, the access to raw materials has improved. The use of technology has reduced physical labour and time spent in raw material procurement and preparation boosting productivity. This had led to increase in the production by value leading to a many fold increase in the direct monthly earning potential of the Artisans and with organized sales effort is has lead to better pricing.

The Loss per firing has been reduced from more than 50% to less than 14% per firing. The time consumed in raw materials processing by the artisans is also reduced to 1 day as against 7-10 days earlier. The only physical labour right now required for the artisans is in the rolling of the clay slabs. The monthly net productive days for each artisan have now increased to 26 days a month as against 10-11 days earlier. This itself represents a 2.5x increase in productivity. Finer products are now created with higher strength, durability and appeal. The increased productivity and the reduced physical labour required coupled with finer better quality production with branding, potters will be able to improve their Socioeconomic situation due to increased incomes and recognition. A total of 52 individuals belonging to the ST community were benefitted out of which 25 individuals were males and 27 were females.

Number and details of Beneficiary (Male population)	**Direct**	**Others**	**SC**	**ST**	**OBC**
		0	0	3	0
	Indirect	**Others**	**SC**	**ST**	**OBC**
		0	0	22	0

Number and details of Beneficiary (women population)	**Direct**	**Others**	**SC**	**ST**	**OBC**
		0	0	17	0
	Indirect	**Others**	**SC**	**ST**	**OBC**
		0	0	10	0

4. Beekeeping in Nagaland: Powering local economy by means of self-employment

Implementing Agency: - NECTAR in collaboration with NBHM, Nagaland

NECTAR, in collaboration with State Missions and various NGOs, has undertaken several projects to promote scientific beekeeping and support apiary expansion in the state of Nagaland, India. The aim of these projects is to overcome challenges such as beehive loss due to theft, vandalism, fires, and weathering, while also saving space and reducing costs associated with traditional wooden beeboxes. To achieve these goals, NECTAR has provided support to NBHM (organization/NGO) for the construction of 1000 underground Concrete Hives in Mima village, Kohima district, and 500 underground Concrete Hives in Runguzu village, Phek district. This initiative has resulted in the production of 6 metric tons of honey valued at Rs. 21 lakhs.



In addition, NECTAR has supported another NGO called ECS in distributing 1700 innovative bee boxes to beekeepers in Tuensang district, leading to the production of 7 metric tons of honey. Furthermore, the organization provided support to the Kiding Self Help Group in Phek District by providing 675 bee boxes along with accessories like extractors, strainers, and gloves, which led to the production of 1.5 metric tons of honey.

Moreover, NECTAR has played a role in knowledge transfer on scientific bee management and apiary expansion in Mokokchung District through collaboration with NBHM. Over 520 bee boxes were distributed, and two batches of training were conducted covering aspects such as apiary management techniques, post-harvest management, value addition, and marketing skills. This project has resulted in an impressive production of 35 metric tons of honey in the state.

Overall, these collaborative efforts between NECTAR, State Missions, and NGOs have significantly contributed to the advancement of beekeeping practices in Nagaland. The introduction of innovative underground Concrete Hives and modern bee boxes has helped in overcoming challenges, enhancing honey production, and providing supplementary income to beekeepers. Furthermore, the focus on knowledge transfer has empowered local communities with the skills needed to manage and expand their apiaries successfully. These initiatives not only support the sustainable growth of the honey industry but also promote the conservation of honeybee populations and their essential role as pollinators in maintaining a diverse and healthy ecosystem.

- **Outcome and People Benefited: -**

  NECTAR has made significant impression in expanding the honey production in the State by supporting more than 4,390 no. of bee boxes to number of beekeepers leading to production of more than 45T honey, imparting training, marketing through e portals, setting up of lab and intends to expand the support in other States for overall development and spreading sweetness in NER.

- **Establishment of honey testing laboratory in Nagaland**

Fig. : Inauguration of honey testing facility by Shri Narendra Singh Tomar, Honourable Union Minister of Agriculture and Farmers Welfare, Government of India.

To further strengthen the apiculture sector, NECTAR has established the honey testing laboratory at Dimapur, Nagaland being implemented by the Nagaland Beekeeping & Honey Mission. The established honey testing laboratory was inaugurated on 27th June 2022 by Shri. Narendra Singh Tomar, Honourable Union Minister of Agriculture and Farmers Welfare, Government of India. The laboratory came into full functional on 27th July 2022 that was initially operated and assisted under the guidance of a professional biotechnologist, deputed from the Health and Family welfare department, Government of Nagaland. The honey testing laboratory is fully functional and analysis is carried out per the guidelines mandated by the FSSAI (Food Safety and standard Authority of India).

Proper analysis will ascertain product quality produced by different bee species in NER and this help in checking compliance with national and international food standard specifications and nutrient labelling. The project will be merged with activity of intervention on rock bee hunting in Nagaland under which 75 rock bee hunters will be trained professionally in scientific lines and skill in honey & Wax trade to support innovative techniques of Rock bee hunting in enhancing productivity and quality in an environmentally sustainable manner.

Fig: Officials from NECTAR and NBHM-Nagaland

5. Waste to wealth – Pineapple and Banana Fiber Extraction

Implementing Agency: - Udalguri Farmrs Cooperative Society Ltd.

NECTAR has taken up a project titled "Waste to wealth – Pineapple and Banana Fiber Extraction", with the aim to convert waste of harvested banana and pineapple into eco-friendly and biodegradable fiber. It will provide livelihood opportunities to the community through generation of employment and the value added products made would enhance the profitability of banana and pineapple farming.It will also minimize deforestation due to various wood/cellulose processing industries thus protecting our ecology and environment.

- **Outcome and People Benefited: -**

With NECTAR's technological intervention, it was possible to extract banana, pineapple fiber from the proposed raw materials with standard quality to be used for weaving attractive pieces of clothes, rugs, sarees etc. The banana water as by products is used as organic fertilizer. The project was officially inaugurated on 8th September 2022. An approximate of 40 people were provided direct employment and around 250 beneficiaries were indirectly employed under this project.

Fig. : Inaugration of Banana fibre extraction unit at Udalguri, Assam

6. Setting up of 'Centre for Skill Development in Appropriate Technologies'

Implementing Agency: National Institute of Technology, Arunachal Pradesh

National Institute of Technology (NIT) Arunachal Pradesh has been sanctioned a project "Centre for Skill Development in Appropriate Technologies" sponsored by NECTAR, for five years for the period 2020-2024, with the objective to identify and build capacities through skill development that can help upgrade the human resource development to create and nurture the various models of sustenance and use of technology application for social good.The centre will support and develop various models for technology which will add to the socio-economic development of the region.

- Outcome and People Benefited: -

Under the project, NIT Arunachal Pradesh has organized an extensive entrepreneurship development training program encompassing various areas such as vermicomposting, bamboo shoot and non-timber forest products, poultry farming, herbal product making, pickle preparation, banana stem fiber extraction, cost-effective renewable energy dryers, biogas digesters, bio-based disposal production, and flexible 3D printing operation. The project has been executed in two phases, with 4 trainings in the first phase and 19 trainings completed in the second phase, and 4 more remaining. Encouragingly, around 4-5 trainees have already commenced their own businesses, including 2 in vermicomposting, 2 in poultry farming, and 1 in pickle making. This comprehensive initiative aims to foster entrepreneurship, sustainable practices, and economic development in the region. Based on the outcome of the second-year trainings, an initial proposal has been received from NIT Arunachal for the third phase of trainings comprising of 21 training programmes in various sectors of food processing, textiles, pharmaceuticals, agriculture etc.

Figure: Hands on training on vermicomposting

Figure: Training on pickle making

Figure: Training on poultry farming

Figure: Training on herbal tablets, capsules and syrup making

7. Banana Food & Fiber Extraction and processing up to textiles

Implementing Agency: Khankho-Lom Producer Company Ltd (KLPC Ltd, Manipur)

NECTAR has approved a project for Khankho-Lom Producer Company Ltd under the TOSS scheme, with several key objectives. Firstly, the project aims to provide essential technological services, product and design/processing support, quality control, and maintenance support locally. Secondly, it seeks to create a pool of young entrepreneurs not only in Churachandpur district but across Manipur, encouraging them to produce unique products for targeted customers and generating employment opportunities. Thirdly, the project intends to promote and develop agro-handicraft livelihood and agro-handicraft-based processing units in the northeastern state of India by establishing a sustainable common facility center equipped with modern facilities. Additionally, the project places a significant focus on promoting women's employment, recognizing that handicraft production is a major income source for rural populations, especially for women supporting their families. Thanks to NECTAR's support, successful extraction of banana fiber and the development of various products like Handicrafts, Banana Chips, and Fertilizers have been achieved. This accomplishment has earned the Principal Investigator recognition as the winner of the MANAGE Samunnati - Agri Startup Awards 2022 for the state of Manipur.

Fig: Banana and banana- fibre based products

8. Demonstration and induction of solar powered cold storage in agricultural land of Serchhip District, Mizoram

Through NECTAR's support, a 10MT solar cold storage container (40ft x 8ft x 10ft) was delivered and installed at Khawzawl which is located towards the eastern belt of Mizoram, at about 150km from the capital city Aizawl. The system was successfully installed, trial run conducted, commissioned, and handed over to MISTIC on 7th January 2022 by the technology supplier, Inficold India Pvt. Ltd. The cold storage will be utilized mostly by tomato and orange growers in and around Khawzawl area, anticipating that 80-100 beneficiaries will be benefitted by the Solar Cold Storage project.

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Fig: Solar powered cold storage facility installed in collaboration with MISTIC, Mizoram

- **Outcome and people benefitted**

  The cold storage will be utilized mostly by tomato and orange growers in and around Khawzawl area. According to report by District Horticulture Office, about 130 and 80 number of households respectively are engaged in tomato and orange farming. The annual production of tomato during the year 2021 was approximately 2500 quintals

9. Design, development and demonstration of pilot scale environmentally friendly decentralized solar aroma distillation unit (20 kg capacity) for northeast region farmers cultivating aromatic crops (by CSIR-CIMAP)

A solar distillation unit of 20 kg capacity is developed by CSIR-CIMAP, Lucknow through a project supported by NECTAR to extract the valuable essential oil from aromatic plants. This unit comprises of solar panel connected to the bottom of the still through resistive heating elements deep inside the water for uniform steam generation, distillation still with mesh grid frame for holding the planting material, packed column for removal of dust dirt impurities, shell, and tube condenser, new oil separator embedded with oil reflux line, energy meter, temperature sensor, and pressure safety valve .

- **Outcome and people benefitted**

  This Environmentally friendly solar distillation technology will benefit the farmers to obtain better quality of oils, which will fetch them high prices, reduces the farmer dependency on wood for heat generation resulting in low operating cost and curtail the environmental related issues like CO2 emission and deforestation.

Table: Comparision between wood-based distillation unit and solar distillation unit

Details	Conventional wood-based distillation unit	Solar distillation unit
Batch capacity	20 Kg	20 Kg
Capital Required		
(INR)	2,00,000	4,25,000-4,50,000
Amount of energy required for steam generation*	~97311 KJ	~97311 KJ
Type of fuel used	Wood	Eco-friendly solar energy
Amount of CO2 released after each batch	20Kg	00
Subsidy available for operation	00	Panel are available on subsidised rate
Life of operation	Wood consumption is daily required	Panel are workable for 20 years

10. Blending technology with Indian bamboo handicraft to produce faucets – A real game changer in the Indian bamboo eco-system

Implementing Agency: -M/s SAN ECO Vision, Faridabad

As we know India is the 2nd largest producer of bamboo in the world. It is a natural, eco-friendly, sustainable, and renewable resource. Bamboo is capable of rapid growth and increases vegetation and forest cover. It's naturally strong material, worthy of use for diverse purposes. Traditionally, the Indian society has been using bamboo to produce many make variety of things starting from handicraft to construction of houses. Even now, many hilly villages transport their water from higher stream through bamboo pipes. In some other parts of the world, like Japan, Vietnam, Indonesia and many other countries, bamboo is still considered very auspicious, sustainable, and also a major source for the livelihood.

The manufacturing of bamboo faucets doesn't require a large industrial set-up. It can easily be manufactured in a much smaller setup with the use of some specially designed machinery and well-trained artisans. A specially customized faucet cartridge is used to regulate the water flow and the respective connectivity. Average faucet is made with <80% processed bamboo, >20% ceramic, metal, and the rest with rubber content. As bamboo is non-corrosive unlike metal, it can serve for a period much longer compared to metals.

- **Outcome and People Benefited: -**

Number and details of Beneficiary (Male)	**Direct**	**Gen**	**SC**	**ST**	**OBC**
		20	0	0	0
	Indirect	**Gen**	**SC**	**ST**	**OBC**
		30	0	0	0

The company/organisation, with the support from NECTAR developed Bamboo Faucets and Mixers which not only replaces harmful plastic and expensive metal in the faucet manufacturing but also can engage traditional bamboo artisans and generate huge employment across the country. Locations had also been finalized for installing machineries and training for manufacturing the faucets, bottle and cutleries.

11. Augmentation of Income of small tea growers of Assam through Production and Marketing of Specialty Tea

Implementing Agency: Assam Agricultural University, Jorhat, Assam

This project focused on conducting a comprehensive survey and documentation of the traditional tea processing technologies practiced by various tribal communities in Assam and Arunachal Pradesh. It also included the evaluation of Phalap, Khilang Pat, Haleng, and other teas processed by these communities, analyzing their biochemical and organoleptic characteristics. Given the strong demand for specialty teas among consumers worldwide, the project aimed to popularize and disseminate these traditional tea processing methods among small tea growers in the region. Through training and method demonstrations, the small tea growers could adopt these techniques and establish a cottage industry to produce specialty teas like green tea, oolong tea, and white tea.



As part of the project, the small tea growers were provided with training and method demonstrations on traditional tea processing technologies, with a particular focus on specialty teas. Additionally, exposure visits were organized to tea processing units, marketing sectors, broker houses, blending, and packaging units, providing valuable insights into the tea industry's various aspects. Moreover, the participants received training on forming Farmer Producer Companies (FPC), developing brands and logos, packaging, and utilizing e-commerce platforms. These essential trainings equipped the tea growers with the necessary skills to market and sell their products effectively in the market sector, enabling them to earn a good income from their specialty teas. Overall, this project aimed to empower and uplift the small tea growers of the region by promoting traditional tea processing methods and tapping into the potential of specialty teas in the global market.

- **Outcome and Beneficiaries:**



With skill upgradation the tailors are able to enhance their monthly incomes. 32 women centres have gone through skill upgradation of which 20% are general. The machines from nectar will bridge the gap to make is a

complete garment manufacturing unit for uniforms. As of now they are producing only for RKM, Sohra schools. The intervention will expand the capacities of tailors and weavers in terms of diversification and development.

12. Setting up of E-Language & Multimedia & Multimedia Lab through Wide Area Network/ Cloud based server

Implementing Agency: Nowgong Girls' College and B.N. College, Dhubri

NECTAR has taken up this project with the objective to develop a setup for Human-resource development through advance Language learning system basically English Language and Carrier oriented Multimedia Applications Courses. To develop the maximum user involvement in the language learning Platform must be accessible over the web, where cloud based back-up server module is preferable. To smooth operation of the said project after testing and demonstration of the developed setup, both the colleges shall be responsible for coordinating each other and run the project at least three (3) continuous years including implementing time of 02 months. The project is jointly be coordinated by NECTAR and the Colleges, with due mutual recognition to both in all publications etc. NECTAR role is to monitor and assist the project through its assigned technical and procurement guideline. The proposed-up gradation will lead to the up scaling of an off line module of the traditional language lab to a futuristic new technology enable E-language & Multimedia Lab with the involvement of about 500 number of users.

For the delivery, sustenance and use technology applications for daily social life; Oreal® Talk-Cloud-based Language Lab application) Integrated e-Learning & Online exam has been used in this project, This application is foreseen to ensure the benefit of technology among people, communities and institutions for equitable and inclusive social and economic development of our region.

- **Outcome and People Benefited: -**

Number and details of Beneficiary (Male)	**Direct**	**Others**	**SC**	**ST**	**OBC**
		50	40	18	30
	Indirect	**Others**	**SC**	**ST**	**OBC**
		1031	101	18	288

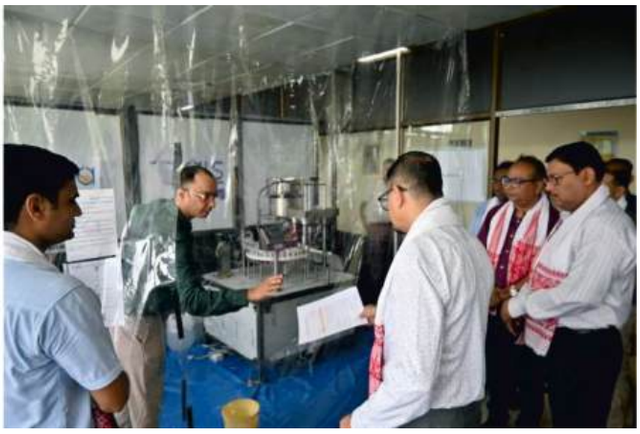
Number and details of Beneficiary (Female)	**Direct**	**Others**	**SC**	**ST**	**OBC**
		30	30	22	30
	Indirect	**Others**	**SC**	**ST**	**OBC**
		920	76	25	288

E-Language and Multimedia Lab through Or6ll® Talk - Cloud-based Language Lab Integrated-Learning & Online exam has been a center of excellence to resolve the last mile problem of Language skill barriers in the delivery, induction, management, use and extension of technology applications. This Centre is committed to mitigate and fill the vital gaps in the techno-economic interface and establish and deliver expertise and services in the area of Communication with technology. This technology is well designed, sourcing the most appropriate and optimal technology application the Or6ll® Talk. The beneficiaries adapt, adopt and induct the applications for local and effective use that is for entrepreneurship. This technology and management inputs serve to strengthen their economy and create incomes and livelihoods for the poor and disadvantaged people of the region. The milestone to achieve through this project is to deliver Language command solutions to our students and in our neighbourhood through technology. The young minds have a potential to generate social or economic growth in the region and this E-Language and Multimedia Lab can create opportunities for them to advance their lives by this value addition. We further focus on achieving Language (written and spoken) skills that can create income and livelihoods for the people of our region, especially the poor and the disadvantaged communities

13. Production of microbe immune, user-friendly bio sampler for Corona virus collection & smooth hygienic transport.

Implementing Agency: - Aavya Life Science Private Limited

Aavya Life Science Private Limited has recently developed a Molecular Transport Medium (MTM) for the collection of Covid 19 sample. Product will be useful for the collection of DNA & RNA virus sample i.e., HPV virus, Swine Flu virus, and other hospital acquired infection. The uniqueness of the product is that the sample will be stable at room temperature for up to 7 days. Cold chain is not required during the transportation of sample. The product is approved from Maulana Azad Medical College and ICMR with 100 % sensitivity and specificity. For the stated project, Aavya Life Science Pvt Ltd had a funding support of Rs 25 Lakhs from Northeast Centre for Technology Application and Reach (NECTAR).



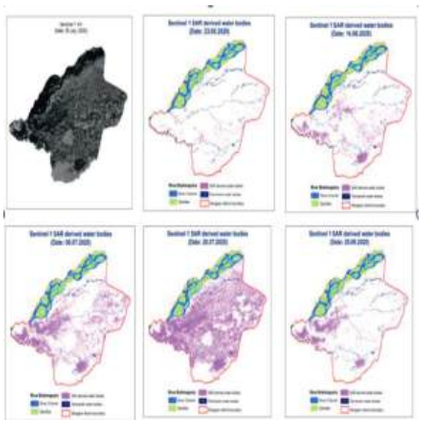
- **Outcome and People Benefited: -**

  All the medical and health workers will be benefitted from the product developed by Aavya Life Science, since the MTM will ensure a contact free collection of samples from the patients. The patients will also be benefitted significantly since it will be very easy for them to purchase the tube containing the MTM from any chemist's shop, put their swaps in it with the MTM and submit it at the sample collection centre. The product is also planned to be kept at a very reasonable price. The manufacturing unit was inaugurated in the premises of IASST Guwahati on 1st of July 2022, in the presence of Dr Arun Kumar Sharma, Director General, NECTAR; Professor Ashish K. Mukherjee, Director IASST, Guwahati and other NECTAR officials.

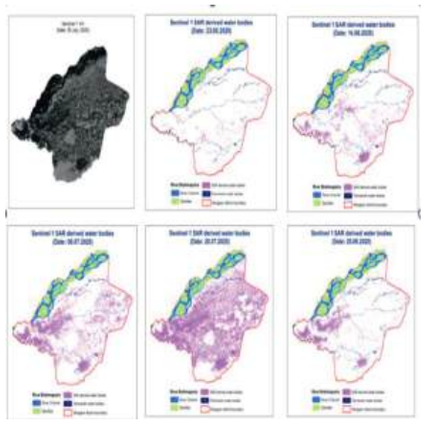
14. Mapping Of Flood Prone Areas of Assam Using Geospatial Technology for Risk Reduction and Resilience Building

Implementing Agency: - NECTAR

Floods have been a recurring challenge for Assam, impacting livelihoods, culture, and the economy of the region. The fertile Brahmaputra valley, home to 27 million people, sustains a large agrarian economy, but it also faces the adverse consequences of periodic floods that lead to loss of life, displacement, and poverty. With the advancement of science and technology, there is a shift towards understanding and mitigating natural disasters, and remote sensing, GIS, and satellite technology have become crucial tools in monitoring, predicting, and managing flood situations.



NECTAR, recognizing the recurring flood and erosion issues in Assam, has initiated technological interventions to mitigate flood impacts in three flood and erosion-prone districts: Morigaon, Majuli, and Dhubri. Remote sensing, GIS, and UAV technology are being utilized to study flood history, river course changes, real-time inundation, and socio-economic impacts in these districts to develop effective strategies for flood management and disaster preparedness.



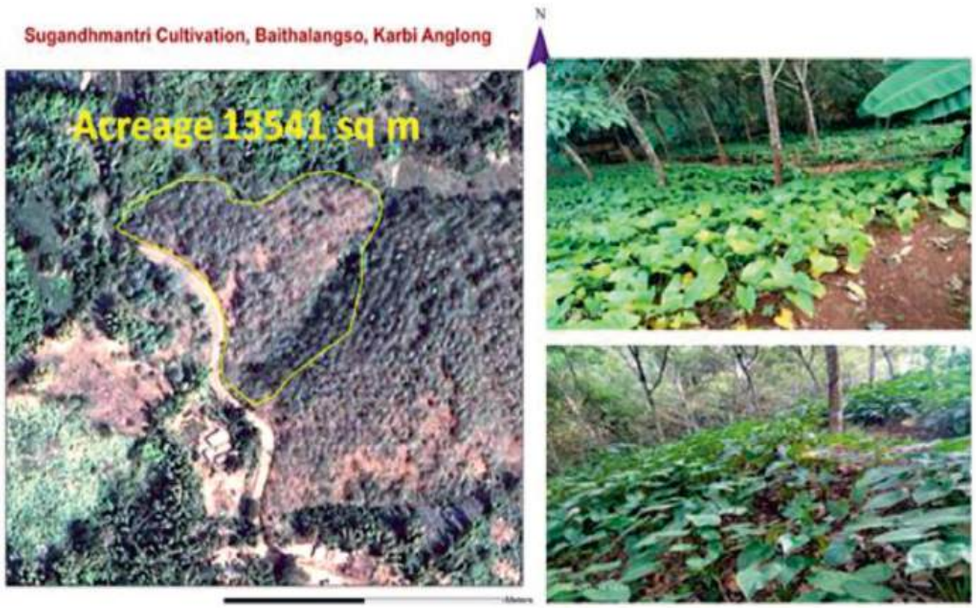
- **Outcome: -**

  NECTAR aims in enhancing community resilience through awareness, education, skill development and capacity building; promotion of appropriate technology for raising flood resilient infrastructure and to provide science and technology input for sustainable flood and erosion management.

15. Mapping/Assessing Medicinal, Aromatic and Dye Yielding Plant (MADYP) cultivation in Assam for entrepreneurship development using appropriate technology

Implementing Agency: - NECTAR

In recent years, there has been a growing interest in Medicinal, Aromatic, and Dye yielding plants (MADyP) worldwide due to their demand in healthcare systems and the production of various health care products. North-Eastern India, being a biodiversity-rich region and a hotspot for biodiversity, is home to numerous MADyP species. Various institutions and organizations have conducted research on different aspects of MADyP in the region, focusing on conservation, cultivation, sustainable development, processing, market linkages, bioprospecting, and biotechnology applications. However, there has been no comprehensive effort to integrate all relevant aspects of MADyP into policy decisions for the sector's development in the region. With over 70% of the land being hilly and a diverse range of agro-climatic zones, the North-Eastern states are abundantly blessed with plant genetic resources, including many rare, endangered, and threatened species. Recognizing the potential economic benefits for rural communities and the opportunity for entrepreneurship, NECTAR has initiated measures to encourage and promote the MADyP sector in the state of Assam through conservation and sustainable utilization of these valuable resources.



The region's prosperity is closely tied to the preservation and sustainable use of its inherent resources, especially in the context of its unique and valuable MADyP species. NECTAR's intervention seeks to assess and harness the potential of medicinal, aromatic, and dye yielding plants, not only for economic growth but also for the protection of biodiversity and the well-being of the communities that rely on these resources. By incorporating MADyP development into policy decisions and promoting conservation measures, the aim is to create a thriving sector that benefits both the environment and the local population in North-Eastern India.

- **Outcome: -**

  A total of 63 locations with MADyP cultivation areas were identified and geotagged using high-resolution imagery to study spectral signatures. Interviews were conducted with MADyP farmers, entrepreneurs, and traders to gather information on their farming practices, challenges, prospects, and requirements for technology, finance, and market linkages. The fieldwork data will guide future project activities, including inventory making, mapping, consultation with farmers, and capacity building. Information and geo-coordinates collected from farmers' plots were transformed into GIS maps, creating a comprehensive database with details of various MADyP species, mapped farm plots, and crucial information about farmers' experiences and views on enhancing MADyP cultivation and entrepreneurship in Assam.

CHAPTER - 8

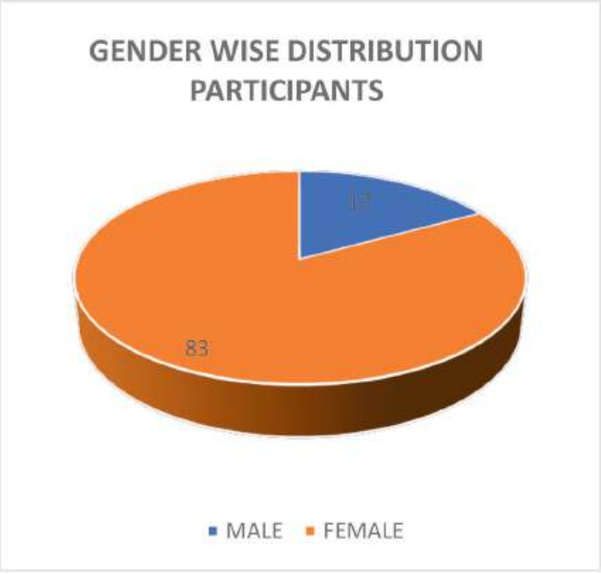
TRAINING AND CAPACITY BUILDING

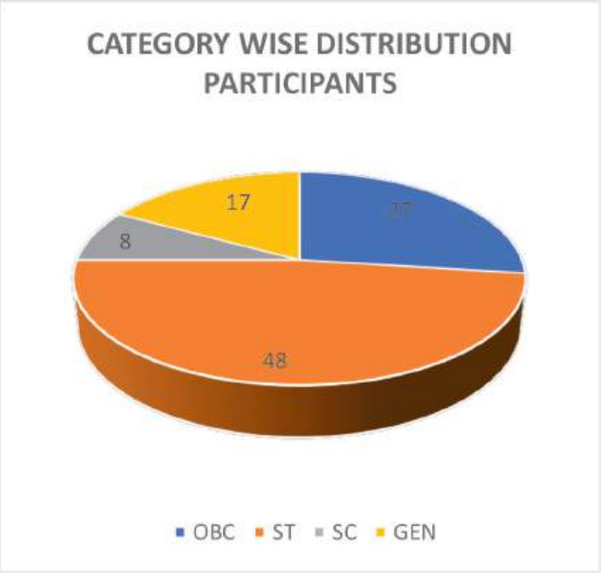
1. Training on Agarbatti, Dhoopbatti, hawansamagiri and perfumery at different locations in NER by NECTAR in collaboration with FFDC, Kannauj, UP.

Objective- Training program on Agarbatti, Dhoopbatti, hawansamagiri and perfumery manufacturing during July- August 2022 sponsored by NECTAR and organised by Fragrance and Flavour Development Centre (FFDC), Kannuaj in collaboration with Ramkrishna Mission, Sohra and Bethany Society,Shillong in Meghalaya and Bal Jan Anchalik Seva Kendra, Goalpara in Assam

State- Assam and Meghalaya

Outcome- As part of the training programme, the participants were taught in the various aspects related to the manufacturing of Agarbatti, Dhoopbatti, hawansamagiri and perfumery through both theory as well as hands-on practical sessions. A total number of 100 participants across all the locations participated most of whom were females and majority belonged to the SC/ST and OBC community.





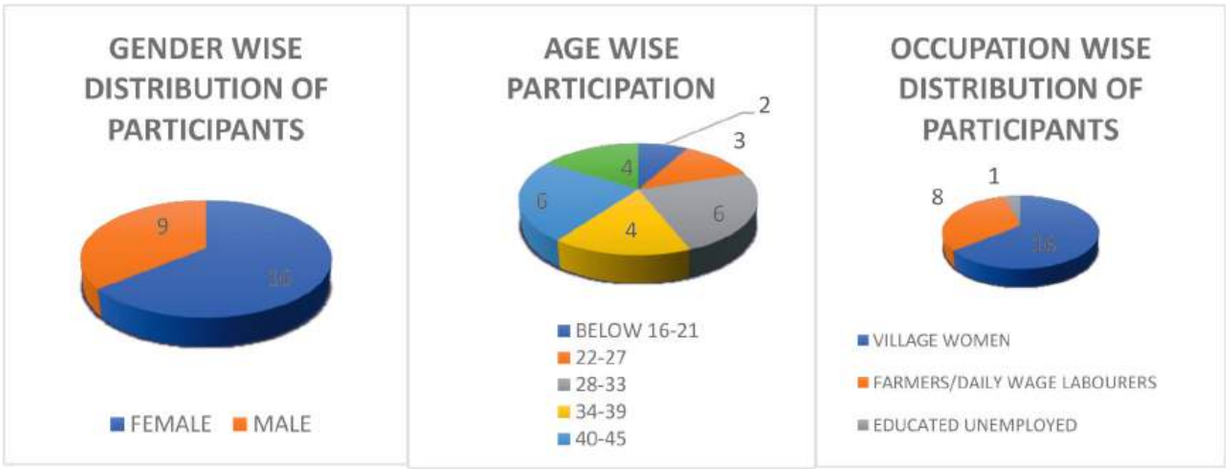

Training Programme on
Agarbatti, Dhoopbatti, Havansamgri & Pe
29.06.2022 to 03.07.2022
Sponsored by: North East Centre for Technology Appli
At: Ramakrishna Mission, Sohra, Megh
Organized by : FRAGRANCE AND FLAVOUR DEVELOPMENT CENTRE
2022.07.03 15:47

2. Bee-keeping training at Shamator, Nagaland by Shekinah Christian Foundation

Objective- The prime objective of this initiative is to incentivize and promote bee-keeping potential in the most interior regions of Nagaland and tap into the already existent rare sources of production by application of technology and research. This will further encourage the farmers/traders and allow for higher output generation with better market trading potential and processing/packaging of the products. The experts will present the latest up-to-date skills and knowledge related to the application and usage of the most advanced and researched tools and equipment for the trade.

State- Nagaland

Outcome- As part of the training programme, Shekinah Christian Foundation (SCF) has successfully completed the training, with a total of 25 ST beneficiaries comprising of 9 male participants and 16 female participants. The trainees have learnt the art of making their own bee boxes and expressed the interest of rearing bees. In order to encourage the women to become self-reliant, SCF announced an incentive prize of Rs. 5000/- to the first woman trainee to successfully make a bee-box on their own.



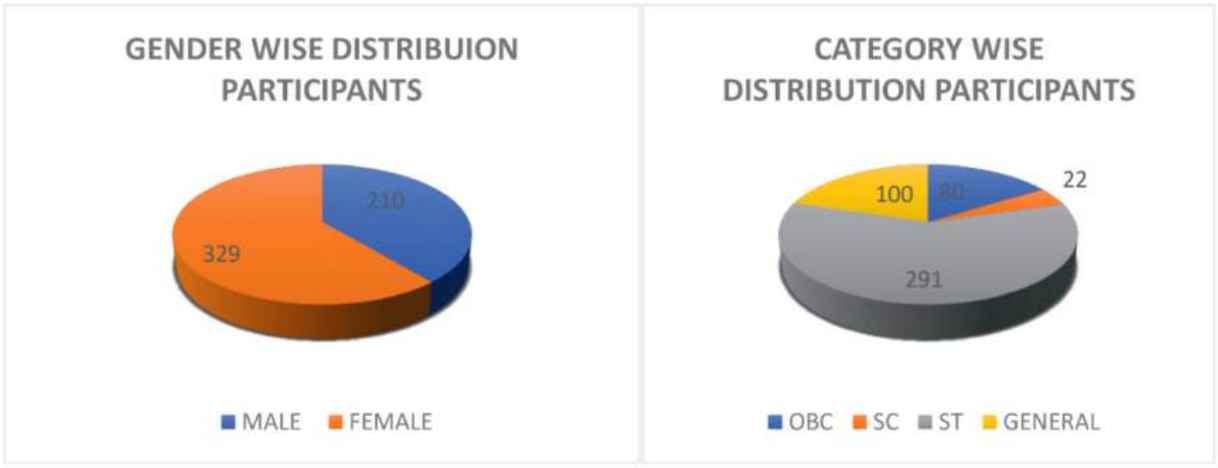
3. Skill Development in appropriate technologies by NIT Arunachal Pradesh (Third year proposal)

Objective- One of the mandates of NECTAR is to provide skill development trainings in areas of requirement in NER. and entrepreneurship development in areas of requirement in NER. In this regard implementation of the training programme on "Centre for Skill Development in Appropriate Technologies" by National Institute of Technology, Arunachal Pradesh, for the first and second phases has been successfully completed. Based on the outcome of the second-year trainings, an initial proposal has been received from NIT Arunachal for the third phase

of trainings comprising of 27 training programmes in various sectors of food processing, textiles, pharmaceuticals, agriculture etc. This training is basically a task-oriented activity aimed at improving performance in making them self-dependent.

State- Arunachal Pradesh

Outcome- 542 participants participated in the training programme. 5 entrepreneurs have started their own business.

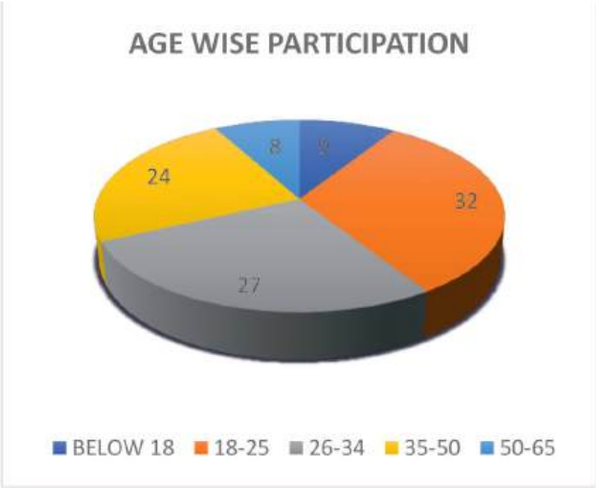


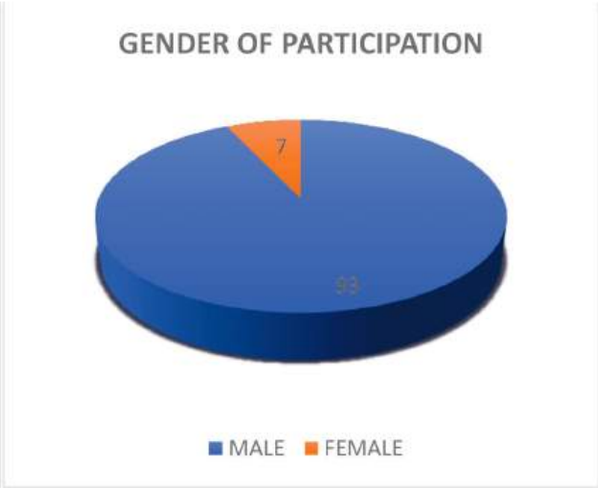
4. Training on Banana Fiber Handloom and Handicrafts by Anakaputhur Natural Fiber Textiles (AnaNaFiT), Chennai

Objective- Anakaputhur Natural Fibre Textiles (AnaNaFit) is an eco-friendly natural fibres based textile company with an expertise in Fibre Extraction. AnaNaFit has trained close to 1000 weavers across India on fibre extraction in places like Karnataka, Tamil Nadu, Gujarat and North East. With NECTAR's ongoing projects, "Waste to wealth-Pineapple and Banana Fiber Extraction" at Udalguri, Assam and "Banana Food & Fiber Extraction and processing up to textiles" at Churachandpur, Manipur; AnaNaFit is interested in collaborating with NECTAR and provide trainings to people in order to expose trainees to the utilization of banana fibre. The trainings would comprise of Hands-on fibre extraction , Hands-on yarn making, Hands-on loom cloth making viz saari etc.

State- Assam

Outcome- The training is completed with the participation of 100 ST beneficiaries.



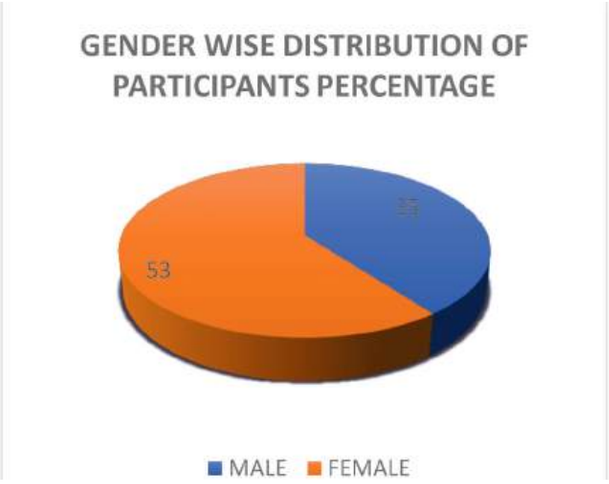


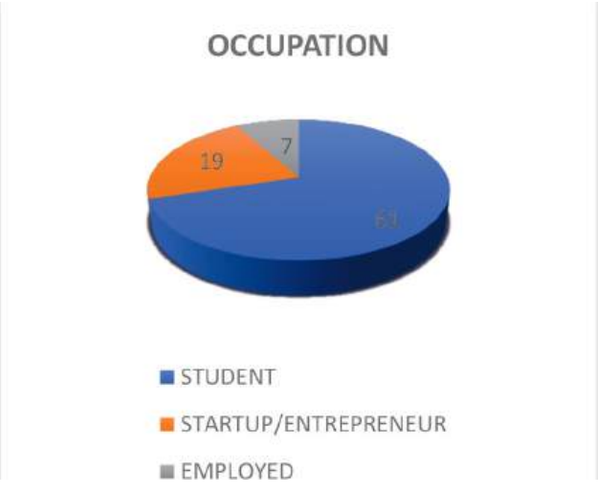
5. Training on Micropropagation by Guwahati Biotech Park

Objective- Guwahati Biotech Park is established with the main objective to provide self-employment, to the unemployed and additional work for the underemployed and also, to stimulate the economy of Assam through a focused and comprehensive approach on a few, selected sectors to encourage new groups of entrepreneurs to start diversified business units in the region. The objective of the proposal is to train students in the basics of Plant Tissue Culture (PTC) including the biological concepts in banana and ornamental plant PTC, surface sterilization of different tissues of plant (embryo, anther, seed, meristem, shoot tip) and preparation of culture media

State- Assam

Outcome- The outcome of the training is the acquisition of knowledge, skills and capacity that enable 88 participants to effectively utilize and apply micropropagation techniques for various purposes, including research, commercial production, and innovation in the field of plant biotechnology.



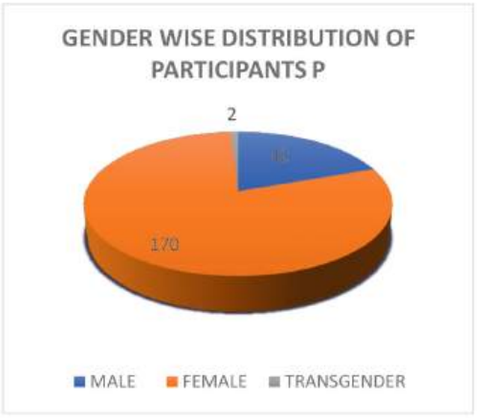


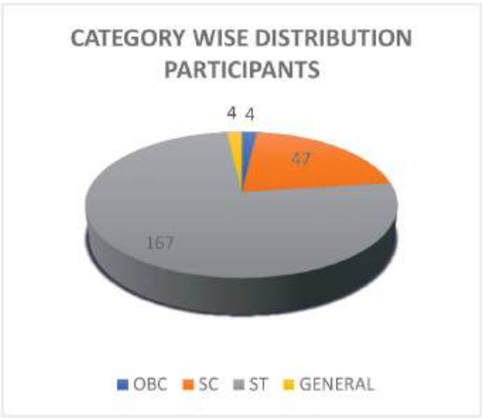
6. Promoting Techno-preneurship in NER by Entrepreneurship Development Institute of India

Objective- Implementation of a project on Promoting Techno-preneurship (Technology based enterprises) in collaboration with Entrepreneurship Development Institute of India (EDII), Ahmedabad for the first phase has been successfully completed on 3rd November 2022, with operations in the states of Assam, Arunachal Pradesh, Nagaland & Tripura. A proposal received from EDII for the second phase of trainings comprising of 2 Entrepreneurship Awareness Programme (EAP) and 4 Entrepreneurship Development Programme (EDP), has been approved with operations in Manipur and Mizoram.

State- Manipur and Mizoram

Outcome- Total number of beneficiaries is EAP- 119, EDP- 10. 35% of trainees have started implementing the learnings acquired during their training programmes conducted at various locations.





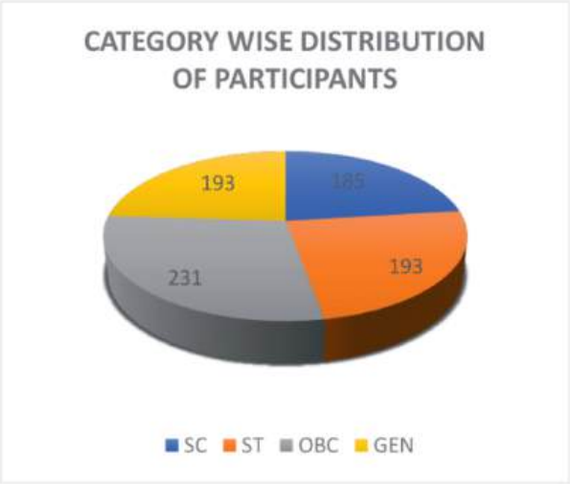
7. BCDI TRAINING PROGRAM, YEAR-2022-2023

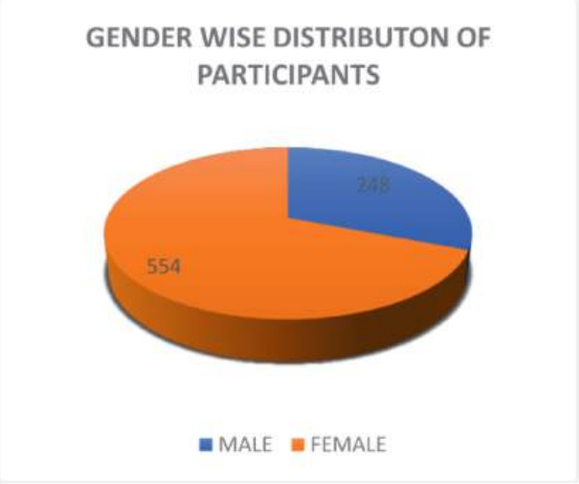
Realising the demand of skilled manpower for supplying of Bamboo based products, 28 different innovative and modular training programs has been conceptualized and developed by BCDI c/o NECTAR. Further to scale up the production process, machines and technology has also been developed and introduced in the training. During the training program participants learned about selection of appropriate bamboo as a raw material, fixing, finishing and branding. Training programs were broadly classified in two categories i.e., Capacity Development and Skill Development with different short-term Training and skill development on Human Resource Development, Design & Prototype development of Bamboo Products.

a. Capacity building training program – duration of training 05 days / 10days/ 15days/ one month Skill development training programs at BCDI, Agartala. Training module like
   - Bamboo propagation & Nursery Management,
   - Bamboo shoot processing,
   - Bamboo Treatment & Processing,
   - Bottle Making,
   - Bamboo Souvenir products
   - Utility & Basketry Products skill development training program conducted for artisans/ students/ unemployed youths and entrepreneur.

b. Total 36 skill development training programs conducted in the year 2022-2023.

c. Total 738 artisans/students/unemployed youth/Entrepreneur were successfully trained.





S.N.	Activity	Duration	Participants
1	15 days Training on Bamboo Bottle Making	05.01.2022 to 19.01.2022	22
2	05 Days Training on Bamboo Treatment and Processing,	09.02.2022 to 13.02.2022	20
3	10 Days Training Program on Bamboo Bottle Making ,	15.02.2022 to 26.02.2022	20
4	05 Days Agarbatti, Dhoopbatti, HawanSamgri and Perfumery	22.02.2022 to 26.02.2022	43
5	One month Residential Training Program on Bamboo Utility Products	28.02.2022 to 29.03.2022	20
6	10 Days Training Program on Bamboo Bottle Making	1.03.2022 to 10.03.2022	20
7	10 Days Training Program on Bamboo Bottle Making	15.03.2022 to 25.03.2022	20
8	05 Days Training on Bamboo Treatment and Processing	22.03.2022 to 26.03.2022	20
9	10 Days Training Program on Bamboo Bottle Making	30.03.2022 to 11.04.2022	19

S.N.	Activity	Duration	Participants
10	One Month Residential Training on Bamboo Utility Products	01.04.2022 to 04.05.2022	20
11	10 Days Training Program on Bamboo Bottle Making	18.04.2022 to 28.04.2022	20
12	05 Days Training on Bamboo Treatment and Processing	25.04.2022 to 29.04.2022	20
13	10 Days Training Program on Bamboo Bottle Making	02.05.2022 to 12.05.2022	20
14	One Month Residential Training on Bamboo Utility Products	05.05.2022 to 04.06.2022	20
15.	10 Days Training Program on Bamboo Bottle Making	17.05.2022 to 27.05.2022	20
16	05 Days Training Program on Composite Bamboo Bottle Making	31.05.2022 to 04.06.2022	22
17	10 Days Training Program on Bamboo Bottle Making	08.06.2022 to 20.06.2022	20
18	10 Days Training Program on Bamboo Bottle Making	28.06.2022 to 08.07.2022	20
19.	One Month Training Program on Bamboo Utility Products	04.07.2022 to 02.08.2022	20
20.	10 Days Training Program on Bamboo Bottle Making	12.07.2022 to 22.07.2022	20
21.	10 Days Training Program on Bamboo Bottle Making	02.08.2022 to 11.08.2022	20
22	One Month Training Program on Bamboo Utility Products	17.08.2022 to15.09.2022	20
23	05 Days Training Program on Shoot Processing, Cookies and Pickle Manufacturing, Batch no.01	30.08.2022 to 03.09.2022	21
24	05 Days Training Program on Shoot Processing, Cookies and Pickle Manufacturing, Batch n0.02	30.08.2022 to 03.09.2022	25
25	10 Days Training Program on Bamboo Bottle Making	13.09.2022 to 23.09.2022	18
26.	05 Days Training Program on Bamboo Nursery and Management	21.09.2022 to 27.09.2022	18
27	One Days Training program on Bamboo Atmanirbhar Bharat (Future Entrepreneur)	24.09.2022	72
28	5 Days Training program on Bamboo Treatment and Processing.	13.10.2022 to 18.10.2022	21
29.	Madhya Pradesh Bamboo Handicraft Training	13.11.2022 to 12.12.2022 (30 Days)	20
30	Bamboo Souvenir Products	21.11.2022 to 30.11.2022 (10 Days)	20
31	Bamboo Bottle Making	06.01.2023 to 17.01.2023 (10 Days)	20
32.	Bamboo Handicraft Training Programme	11.01.2023 to 09.02.2023 (30 days)	20
33.	Cluster Training program on Bamboo Basketry Products	16.01.2023 to 14.02.2023 (30 days)	20
34.	Bamboo Propagation and Nursery Management	21.02.2023 to 27. 02.2023 (05 days)	21
35.	Bamboo Handicraft Training Programme	06.03.2023 to 04.04.2023 (30 days)	20
36.	Bamboo Souvenir Products	17.03.2023 to 28.03.2023 (10 Days)	20












05 DAYS TRAINING ON BAMBOO PROPAGATION & NURSERY MANAGEMENT
Organised by

8. NECTAR in collaboration with TIFAC, organised a 5 days training program on Intellectual Property Rights in Assam and Sikkim.

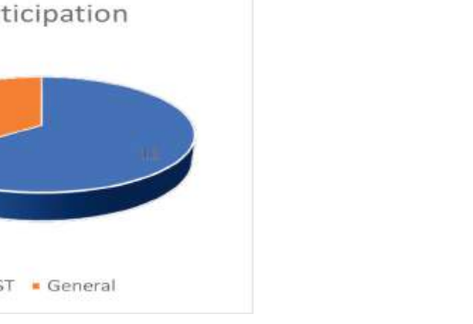
In the first programme organized by NECTAR, a total of 22 participants, including NECTAR officials, attended a five-day IPR & Patent certificate course cum training programme, which commenced on 23rd May 2022. The programme featured 18 resource persons from various parts of India who shared their expertise on patents, copyrights, trade secrets, and international and Indian IP laws. The training was highly appreciated by the participants, comprising entrepreneurs, research scholars, and academics from the unique bio-diverse North East region, who gained valuable knowledge on how to protect their rights, file patents, and understand patent laws. The participants expressed their gratitude to NECTAR for organizing such an awareness programme and demanded its continuation to benefit more people in the region. In the second programme, a week-long certificate training on Intellectual Property Rights (IPR) was held in Sikkim from 13th to 17th March 2023. The program aimed to train research scholars from government institutes and universities on various aspects of IPR, such as copyrights, trademarks, patents, geographical indications, and more. The training was conducted by experts in

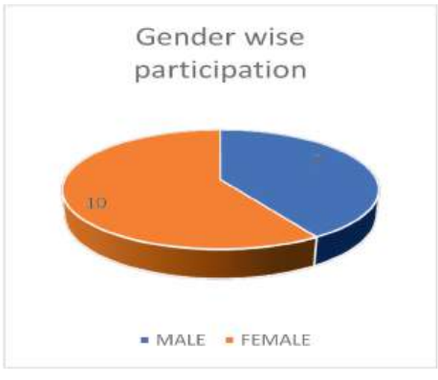
the field, including a Patent Examiner, a Professor of Law, and an IPR Research Expert, resulting in a rewarding and advantageous experience for the participants. The success of the training was attributed to the hands-on learning and interactive sessions. The Sikkim State Council of Science and Technology, Department of Science and Technology, and NECTAR were acknowledged for their support in organizing this beneficial training programme.

11. Exposure training on Crop Cutting Experiments (CCEs) to NECTAR Geospatial Team was conducted by technical person of Agrotech and Risk Pvt. Ltd. at Noida.

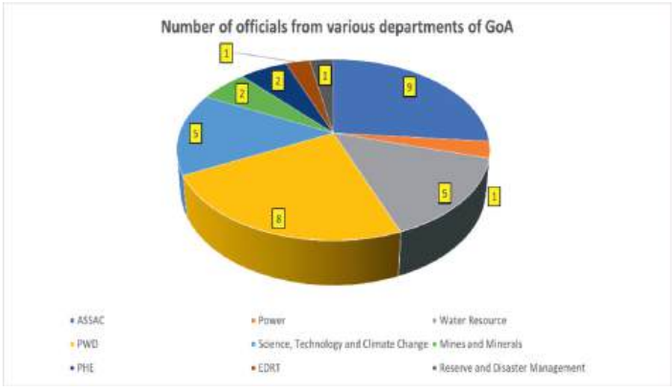
12. NECTAR organized a training for the Mahalanobis National Crop Forecast Centre (MNCFC) Project at the Technology Demonstration Centre in Khanapara, Guwahati. The training program focussed on training the field staff on various methods of collecting data and effective methods of checking the accuracy of data. The training also gave the overall brief about the project.

13. Three Weeks training on Geospatial Technology: NECTAR has provided a three-week training on Geospatial Technology. The training program focussed on giving the practical and industry-based knowledge so that they can be absorbed by various industries after the training. Experts from Industry such as ESRI India, Hexagon Geospatial and Aesteria Aerospace were invited as guest speaker to give industrial exposure to the students. Also, experts from Research Institutions such as NESAC and Aaranyak was also invited. Internal staff of NECTAR was also involved as the speaker and for imparting the practical knowledge among the students. This training also gave the students exposure about the drone technology and demonstrated drone flying in the field area. After the 2 weeks training, students carried out a small case study for 4 days based on the thematic areas given to them and presented their study on the final day of the training program in front of a panel consisting of Chief Guest (DG NECTAR), Guest of Honour and Advisor NECTAR. Based on their presentation and questions asked by the panel members, it was found that students were successfully able to learn the Geospatial Technology and were confident in doing the basic software operations on Remote Sensing and GIS. Three students from the training have joined NECTAR and have given substantial contribution in various projects.





14. One day technical workshop for various departments of Government of Assam. NECTAR organised a one day technical workshop for various departments of Government of Assam such as Water Resource Department, ASSAC, PWD, Power, Housing, Hill Areas department etc. The workshop gave overview about different application areas in each sector and a demonstration was also given on drone flying in the Veterinary College, Guwahati. The government officials showed positive feedback of the workshop.



11. Certified Drone training programme for NECTAR Officials: NECTAR officials have participated in drone pilot license training organized by –

   a. Government Aviation Training Institute (GATI), Haryana, a DGCA-approved organization during 16th to 20th May 2022 at Manesar

   b. Ganpati Aviation Solutions LLP., Delhi, a DGCA-approved organization during 30thMay to 3rdJune 2022 at Jajjhar.

   c. Asteria Aerospace Pvt. Ltd. during 6th to 10th June 2022 at Pataudi, Haryana.


12. **5 days training program on Drone Awareness Training (DAT)** was conducted by NECTAR In collaboration with IHFC- IIT Delhi -to create awareness about the drone technology and to give training drone data assembling, drone hardware and coding related to drones as well as fabrication of some parts. Participants were given training on drone rules, basics of drone technology, drone assembling, fabrication of some minor parts of drones and drone coding. The training program consisted of theory as well as practical sessions with more emphasis on practical aspects. Participants from Nagaland, Arunachal Pradesh, Assam and various other states joined the training programs. All the participants gave positive feedback about the training and requested to organise such trainings on regular basis. The program was inaugurated by Director General, NECTAR in the auspicious presence of Prof SK Saha, IIT Delhi, Dr Ashutosh and Sh. Narendra Gaur. From NECTAR Sh. Rajendra Jena, Chief Geomatics Officer, Sh. Simanta Das, Chief Radio Technologist and other officials from the Geomatics division attended the program. The program was widely covered across various newspapers and TV Channels.



CHAPTER - 9

EVENTS, VISITS & PARTICIPATION

1. NECTAR has organised a Technical Awareness Programme on Compressed Bio Gas (CBG) for generating awareness of green energy in the Northeast India. The programme was organised during the foundation stone laying programme of first of its kind 5 Ton per day Capacity at Domora Pathar, Sonapur in Assam on 25th Feb 2023 by Hon'ble Chief Minister, Dr. Himanta Biswa Sarma in collaboration with Redlemon Technologies Pvt. Ltd.

2. **Participation in Biofuels based Seminar:t**

NECTAR officials participated in the Biofuels based Exhibition and Seminar organized by IOCL in Guwahati. Project Coordinator & Head, BCDI delivered a speech on the "Production of Ethanol from Bamboo". The concept on establishment of compressed Bio-Gas (CBG) plants in North East under Sustainable Alternative towards Affordable Transportation (SATAT) program, of Ministry of Petroleum & Natural Gas was also presented by IOCL and stressed upon the role of NECTAR as a technology supporter.

3. **Inauguration of Production Facility** for the Project "Production of a microbe immune, user-friendly Bio-Sampler for contactless Coronavirus sample collection", supported by NECTAR, in presence of Director- IASST, Guwahati, DG-NECTAR & other Officials at BIO-NEST, IASST Guwahati.

4. **Inauguration of the NECTAR's supported project**

- "Virtual Laboratory" by Shri Vishvajit Sahay, Additional Secretary & Financial Advisor, DST in presence of DG, NECTAR, Secretary to the Govt. Of Meghalaya, Economic Advisor, NEC and other Official at NECTAR's TDC Guwahati.

- NECTAR supported project, "Banana Food & Fibre Extraction and Processing up to Textiles", was officially launched by Shri P. Baite, Joint Director, MSME, GoI in Churachandpur, Manipur.

- NECTAR supported project entitled, "Real Time Patient Monitoring System (Last Mile Services) for Rural and Hard to reach Population", implemented by Hake Technologies Pvt. Ltd. in Kokrajhar, Assam, was inaugurated in Simbargaon State Dispensary, Kokrajhar, BTR on 4th March 2023. A software was also developed for telehealth: Patient Registration, follow-up and referral. The target beneficiaries of approximately 3,800 people consisted of the

vulnerable population such as children, adolescents, Pregnant and Lactating Women (PLW), women, People with Disabilities (PWD), and the elderly residing in the following four backward villages – No.1 Jaolia Para, No. 2 Jaolia Para, Duramari East and Duramari West under Simbargaon PHC.

- Inauguration of Smart Bamboo Water Tower in RKM, Sohra in presence of DG, NECTAR, Maharaj RKM, dignitaries from Water Resource Department, Govt. Of Meghalaya and other Officials from NECTAR and RamKrishna Mission


6. Assam Biotech Conclave: NECTAR had participated at Assam Biotech Conclave, 2022 at IIT Guwahati from 20-22 May 2022 in which it was also able to display various products from NECTAR supported entrepreneurs which had gained much interest among various guests. The event was inaugrated by Honble CM of Assam, Sh. Himanta Biswa Sarma



7. NECTAR participated for the two-day programme organized by State Council of Science Technology & Environment (SCSTE), Bio Resource Development Centre (BRDC) and Shillong Science Centre on the occasion of National Science Day-2023 at State Convention Center, Shillong.

8. Participation in NESAC User interaction meet: NECTAR officials have participated in NECTAR User Interaction Meet (NeUIM-2022) Organized by North Eastern Space Applications Centre (NESAC) on 23rd-24th May, 2022& interacted with the prominent scientists & technologists of NESAC, as well as officials of other line departments for a future possible collaboration for the development of the northeast.

9. **Assam State Conclave:** NECTAR participated in the Assam State Conclave on Sustainable Livelihood through Science, Technology and Innovation Capabilities in Guwahati from 25th to 27thNovember 2022 organized by Vivha Vani India. Advisor (Technical) gave a presentation and highlighted the role of NECTAR in supporting sustainable livelihood.

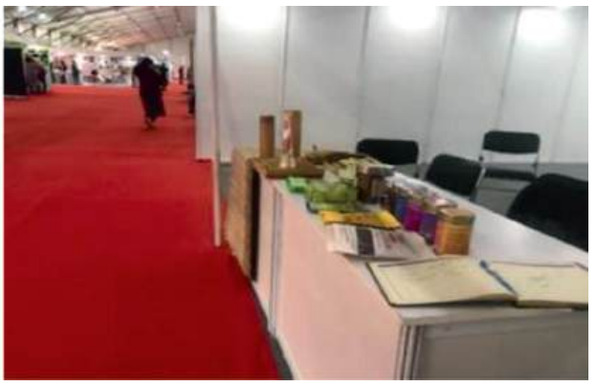
10. Participation of NECTAR officials in North East Food Show 2022 :Officials from NECTAR participated in the 2nd Edition of the North East Food Show 2022 organized by the Directorate of Food Processing, Govt of Meghalaya in collaboration with SIAL and delivered a presentation on during the session on "Government Initiatives in facilitating Food Processing Industries" where other panellists in the session were from Agricultural and Processed Food Products Export Development Authority (APEDA), National Small Industries Corporation (NSIC), PRIME, FSSAI and Directorate of Food Processing.

11. **Conclave on National Tribal Day:** NECTAR participated in the Conclave on Science & Technology Empowerment of Tribal Community from 11th to 12thNovember 2022 at IIT Guwahati organized by Department of Science and Technology, Govt. of India. Altogether 57 Entrepreneurs including 29 from NECTAR supported showcased in the exhibition and demonstrated the various products developed by the tribal community.

12. **IITF'22 Fair:** NECTAR participated in the India International Trade F air from 14th to 27th Nov in New Delhi. NECTAR showcased in the exhibition the various products developed by its entrepreneurs.

13. **World Environment Day 2022** celebrated in NECTAR Shillong Office with the theme #OnlyOneEarth. Events like Poster Making Competition and Extempore Speech among the School students of Shillong was held followed by plantation of Saplings and Cleanliness Drive by NECTAR staffs.

14. Indian Science Congress, Nagpur and IISF, Bhopal: NECTAR participated in the 108th Indian Science Congress in Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur and the India International & Science Festival in Mannit, Bhopal, where products from NECTAR supported projects were displayed.



15. Exposure Visits in BCDI: One Day Exposure cum hand-on training conducted for 05 M. Des students from Shristi Manipal Institute of Art Design and Technology, Bengaluru. Another group of 13 delegates from Latin American countries i.e. Peru, Ecuador, and Colombia also visited BCDI, Agartala for exposure on different bamboo species, nursery and propagation, primary and secondary processing, innovation and technology in product development etc.

16. NECTAR participated in an Exhibition during Science-20 event meeting held at International Fair Ground, Hapania, Agartala.

17. **HGH'22 Fair:** NECTAR participated in the 12th edition of HGH Fair from Dec13-16, 2022 at Bombay Exhibition Centre, Goregaon, Mumbai.Altogether 10 entrepreneurs under NECTAR support showcased in the exhibition the various products developed.

18. Momentum Northeast: NECTAR participated in the Momentum Northeast at Panjabari, Guwahati were products from NECTAR supported projects were displayed. Honorable Governor of Assam and Nagaland visited the stalls and appreciated the products.

19. **MSME Conclave:** Officials of NECTAR gave a presentation on the various projects taken up in Northeast and displayed the products from its supported projects in the two-day MSME Conclave held in Guwahati.

20. **NECTAR** has participated in National Workshop on Bamboo Sector Development & Bamboo Exhibition at Delhi organized by National Bamboo Mission. Also Dr. Abhinav Kant delivered a talk on "Innovation, Skill and Technology in Bamboo Sector".

21. **Swavalamban Sankalp Programme:** NECTAR participated in the Swavalamban Sankalp Program organized by DICCI and SIDBI.

22. NECTAR Participated in "Geographical Indication (G.I.) Awareness Seminar cum Exhibition", Organized by NERAMAC at the NEDFI, Guwahati.

23. NECTAR participated in an "Interactive Session on India-Australia Economic Cooperation and Trade at Agartala" with Deputy High Commissioner and Consul General, Australia.

24. ESRI India User Conference: Director General, NECTAR inaugurated the ESRI India User Conference in Delhi and kolkata respectively.

25. Inauguration of GIS Lab by Director General, NECTAR in NECTAR-Technology Demonstration Centre (TDC), Khanapara, Guwahati.

26. Installation and demonstration of Solar Cooker at NECTAR Shillong and Guwahati Office by Indian Oil Cooperation Ltd (IOCL).


27. Cleanliness drive undertaken under Swachhta Campaign 2.0 in NECTAR campus

28. NECTAR celebrated the 8th International Yoga Day 21st June 2022 in Shillong and Delhi offices

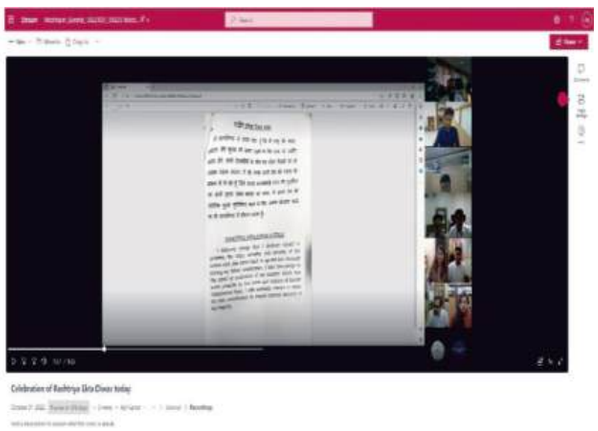



29. National flag Distribution and Awareness Program Flag held in NECTAR office on occasion of 76th Independence Day 2022.

30. Distribution of Low Cost Organic Sanitary Napkins to School Principals in Shillong, an Initiative towards Women's Menstrual Hygiene in Light of International Women's Day held on 8th March 2023

31. NECTAR Celebrated Hindi Pakhwada from 14th to 28th September2022 in Shillong and Delhi offices.

32. On the occasion of #NationalUnityDay on 31st October 2022, the NECTAR officials & staff



33. **Sexual Harassment Awareness and Sensitisation program:** NECTAR organized an awareness and sensitization programme for its employees and staff on 20thDec2022 by the Internal Complaints Committee (ICC) about the provisions of the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal), Act 2013.

34. **Site visit: -** Honey Mission Project: Hundred bee colonies at two sites in Dibrugarh undergone inspection from the Project Monitoring Committee on 3rd February 2023, with expert Dr B.L. Saraswat, Ex MD National Bee Board and NECTAR officials.

CHAPTER - 10

MEETINGS AND COLLABORATION

1. **Governing Council (GC) meeting:** The Eighth Governing Council (GC) meeting of NECTAR was held on 18th April 2022 at Technology Bhawan, Department of Science and Technology,New Delhi.

2. **Governing Council Meeting:** The 9thGoverning Council (GC) Meeting of NECTAR was held on 18th August 2022 in the conference room of NECTAR-Technology Demonstration Centre (TDC), Guwahati under the chairmanship of Secretary, DST.

3. **Finance Committee(FC) meeting of NECTAR:** The seventh Finance Committee(FC) meeting of NECTAR was held on 1stJuly 2022 in the conference room of NECTAR-Technology Demonstration Centre (TDC), Guwahati in presence of Shri Vishvajit Sahay, IDAS, Additional Secretary & Financial Advisor, DST; Dr. Joram Beda, IAS, Secretary to the Govt. Of Meghalaya and Smt. Sherry Lakhangzo, Economic Advisor, NEC.

4. **XIIth Executive Council Meeting of NECTAR** The XII Executive Council (EC) Meeting of NECTAR was held on 22nd February 2022 in Hotel Vivanta, Shillong, to discuss the major activities that have been initiated and planned as per the Action Plan of NECTAR for the FY 2023-24.

5. **Meeting with Bodoland Territorial Region:** Director General, NECTAR had a discussion with Chief of BTR, Shri Pramod Boro on 25th April 2022 and Danish Consortium for Academic Craftsmanship (DCAC), Denmark at Tamulpur (Assam) to discuss about the piggery and dairy farming in BTR. DG NECTAR also had a short discussion with Bodoland Development Foundation.

6. **Meeting of DG NECTAR:**

a) DG NECTAR had a fruitful meeting with Dr V K Saraswat, Member, NITI AAYOG where various issues for the development of NER through S & T interventions were discussed.

b) A meeting was held between DG, NECTAR & Shri T.S. Honda from M/s Mitsui & Co., Japan at New Delhi regarding bamboo based projects in North Eastern Region.

7. **MOU Signed:**

i. MoU signed between NECTAR with Navsari Agriculture University , Gujarat on 08.04.2022 for implementation of Banana Pseudostem project under PM-Devine initiative in the NER.MoU signed between NECTAR with TIFAC on 13.05.2022 for collaboration in areas of patent and copyright registration.

ii. MoU signed between NECTAR with National Research Development Corporation & NECTAR on 05.09.2022

iii. MoU signed between NECTAR and Guru Gobind Singh Indraprastha University (GGSIPU) on 16.09.2022.

iv. MoU signed between NECTAR with Cotton University on 31.03.2023.

v. MoU signed between NECTAR with NERAMAC, Airbotix Technologies Pvt. Ltd. and I-Hub Foundation, IIT Delhi on 21.10.2022, for collaborations in various areas.

8. **Meeting with JICA:** Director General, NECTAR attended a meeting with Japan International Cooperation Agency (JICA) regarding the technical cooperation for Bamboo use promotion project in Northeastern Region and to discuss prospects for collaboration between the two orgnaisations in various other areas. The meeting was held at Krishi Bhawan, New Delhi between JICA, Department of Agriculture & Farmers Welfare (NBM-Horticulture), Northeast Cane and Bamboo Development Council (NECBDC) and NECTAR.

9. The District Level Monitoring Committee meeting between NECTAR and the respective Officers from the DC office, Agriculture and horticulture department of Arunachal Pradesh was held for the implementation of the scheme formation and promotion of 10,000 Farmer Producer Organizations (FPOs).

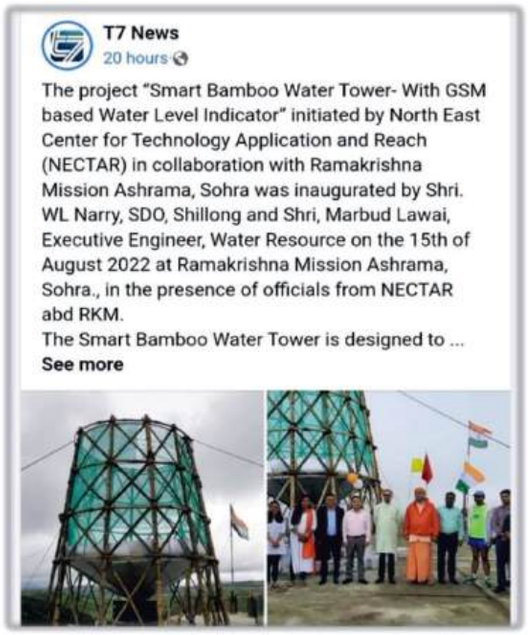
35. Drone awareness program: A meeting was organized at Technology Demonstration Centre, Guwahati by NECTAR with its technology partner M/s Garuda UAV on 5th Nov 2022 to appraise officials from different department of government of Assam about different types of drones (UAVs) and their applications.

10. Meeting with GIZ: Meeting between NECTAR with GIZ Germany and FCTC Ghana during collaborative meeting at New Delhi.

11. Director General meeting with Mizoram Planning & Program Implementation Departments Minister, various govt officials and entrepreneurs.

CHAPTER - 11

NECTAR IN THE NEWS



গোবৰেৰে প্ৰস্তুত কৰা হ'ব চাকি, টাব

সোণাপুৰৰ ধৰিত্ৰী নাৰ্ছাৰীত মুকলি নেক্টাৰৰ প্ৰকল্প

North East Centre For Technology Application And Reach (NECTAR) Dept Of Science And Technology, Govt Of India-Ingugration Of Drone Awareness Training

JCR & CO. LLP
CHARTERED ACCOUNTANTS
MUMBAI . PUNE . AHMEDABAD . SURAT . RAJKOT . VAPI .
CHENNAI . SRINAGAR . LUCKNOW . DELHI . BENGALURU .

INDEPENDENT AUDITOR'S REPORT

To the Members of **NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH (NECTAR)**

Report on the Financial Statements

We have audited the financial statements of **NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH (NECTAR)** ("the Society"), which comprise the Balance Sheet as at March 31, 2023, the Statement of Income and Expenditure, the Receipt and Payment Account for the year then ended and schedules to the financial statements, including a summary of significant accounting policies.

Basis for Opinion

We conducted our audit in accordance with the Standards on Auditing (SAs) issued by ICAI. Our responsibilities under those Standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the entity in accordance with the Code of Ethics issued by ICAI and we have fulfilled our other ethical responsibilities in accordance with the Code of Ethics. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

The Society's management is responsible for the preparation of these financial statements according to its Bye Laws that gives a true and fair view of the financial position and financial performance of the Society in accordance with the accounting principles generally accepted in India.

This responsibility also includes maintenance of adequate accounting records for safeguarding the assets of the Society and for preventing and detecting frauds and other irregularities; selection and application of appropriate accounting policies; making judgments and estimates that are reasonable and prudent; and design, implementation and maintenance of adequate internal financial controls, that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibilities for the Audit of the Financial Statements

Our responsibility is to express an opinion on these financial statements based on our audit. We have conducted our audit in accordance with the Standards on Auditing issued by ICAI.

Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and the disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal financial control relevant to the Society's preparation of the financial statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of the accounting estimates made by the Society's management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion on financial statements.

Opinion

Subject to our audit observations in "Annexure I" of the report, we report that:

a) We have sought and obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit.
b) In our opinion, proper books of account as required by law have been kept by the Society so far as it appears from our examination of those books.
c) The Balance Sheet and the Statement of Income and Expenditure dealt with by this Report are in agreement with the books of account.
d) In our opinion and to the best of our information and according to the explanations given to us, the said financial statements read with the schedules/notes thereto give the information required and give a true and fair view: -
    i. In case of Balance Sheet, of the state of affairs of the Society as at 31st March, 2023; and
    ii. In case of Income and Expenditure, of excess of expenditure over income for the year ended on that date.

For JCR & Co. LLP
Chartered Accountants
Firm Registration No.: 105270W/W100846

(CA Shiv Kailash)
Partner
Membership No.: 571995
UDIN: 23571995BHAZHW4842

Place: New Delhi
Date: 14.07.2023

AUDIT OBSERVATIONS – ANNEXURE I

1. It was observed that the Society had not filed TDS returns for NMBA (parent organization) since the creations of NECTAR. However, we have been informed that the Society is under process to surrender TAN as it is no longer required.

2. The TDS returns filed by the Society for its employees are not according to the Income Tax Act, as the details of salary for the month of March 2023 has not been included in the TDS return so filed. We have been informed by the Society that they have been following this practice as the parent organization DST is also following the same and the salary for the month of March is paid in April. However, the Society has been advised to review the policy in line with the provisions of the Income Tax Act, 1961.

3. During the course of audit, it was observed that prior period expenses of Rs. 7.97 Lakh incurred in the current year against expenses under various heads. The same pertains to previous years, which have been verified with documents provided to us.

4. During the course of audit, no balance confirmation as on 31st March 2023, were provided neither form debtors / creditors and nor from TDA loan outstanding parties. In most of the cases the Society has already taken legal action.

5. During the course of audit, it was observed that various TDA loans are in arbitration and legal process. Society has to take necessary steps to sought out the same as early as possible. There are total 46 cases in legal proceedings as on 31.03.2023 in which 30 cases are in arbitration and 14 cases u/s 138.

6. The Society was mandated to hold at least 2 Governing Council (GC) Meeting and 4 Executive Council (EC) meeting in each year of its operation. However, during the period of audit, Two GC meetings were held on 18.04.2022 & 18.08.2022 and Two EC meetings were held on 01.07.2022 & 22.02.2023 by the society.

7. The Society has closing stock of Rs. 28.74 Lakh as on 31.03.2023 is lying at Shillong/Guwahati location of the Society.

8. The Society has to get back an amount of Rs. 9,11,796 comprising TDS of Rs. 2,15,622 and CPF interest of Rs. 6,96,174 from TIFAC as on 31.03.2023.

9. The Society has got various project specific grants from other government departments which are maintained as earmarked funds and routed through Balance Sheet and on completion of the said projects, the actual surplus / deficit will be taken in Profit and Loss Account.

10. During the last year, w.e.f. 06.08.2021, an agreement has been executed between the President of India represented by Sh. Shantmanu, Development Commissioner (Handicrafts), Ministry of Textiles, Govt. of India and NECTAR through which the operational and management control of Bamboo & Cane Development Institute (BCDI) has been entrusted to NECTAR for efficient running of Bamboo Technology to support

J C R & CO. DELHI CHARTERED ACCOUNTANTS

diverse kind of livelihood in Tripura and North East as well as rest of India initially for a period of three years.

After taking the operational and management control of BCDI, NECTAR started the activities as a project. The financial summary as at 31.03.2023 and 31.03.2022 respectively has been summarized below and dully incorporated in the financial statements of NECTAR:-

Amount Rs. Lakh

Particulars	Current Year 31.03.2023	Previous Year 31.03.2022
Total Grant received for the Training Programmes / Sales & Services	104.57	81.44
Total Amount Incurred for Training Programmes	109.56	47.66
Surplus/Deficit	**(4.99)**	**33.78**
Corpus/**Capital** Fund	161.09	55.41
Current Liabilities	3.57	2.89
Total	**164.66**	**58.30**
Cash and Bank Balance	63.88	58.30
Other Assets F/A & CA	100.78	-
Total	**164.66**	**58.30**

J C R & CO. DELHI CHARTERED ACCOUNTANTS

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

REPLIES TO AUDIT OBSERVATIONS "ANNEXURE I"

The point-wise replies on the observations of the Audit are given below:

1. NECTAR is formed by merging of two technology mission MGA & NMBA. The book of account was earlier maintained under NMBA for which TAN was used. After merging, NECTAR is having its own TAN and the NMBA TAN is not used for any of return filing. The same is now being surrendered.

2. It is the practice in government (particularly in DST) to pay the salary of March in April every year. As it was paid in April, hence included in 1st quarter return of next year. The practice will be reviewed and would be take care in future.

3. The expenses of earlier period have been approved in the current financial year. As the bills relating to the expenditure have been received in current year hence booking of the expenses has been made under prior period expenditure.

4. Emails were posted to all the debtors/creditors to confirm their o/s balance and from TDA loan parties to confirm their TDA loan outstanding balance. No responses have been received so far. NECTAR has taken legal action against most of the TDA defaulters.

5. Arbitration has been initiated against almost all TDA loan defaulters. In some of the cases new reschedulement of repayment has been signed and PDCs has been received after reschedulement . In other cases the parties have started paying the outstanding amount after legal case was filed against them.

6. Two Governing Council meeting were held and two executive council meeting were held, two other meeting of executive council could not be held due to unavailability of time of EC members.

7. Some of the Stock items lying at other locations of NECTAR. Most of the items are bamboo based and it is planned to be consumed in production of bamboo related items of NECTAR / BCDI.

8. The amount of Rs.9,11,796/- receivable from TIFAC in under process of recovery.

9. Grant received for project from other Government department routed through Balance sheet and after completion of the project surplus and deficit taken into profit and loss account as per G.O.I. Norms.

10. All activities of BCDI are taken up as per MOU signed with DC (Handicrafts) Ministry of Textiles and NECTAR.

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

BALANCE SHEET AS AT 31.03.2023

Amount in Rs.

Particulars	Schedule	Current Year	Previous Year
CORPUS/CAPITAL FUND AND LIABILITIES			
Corpus / Capital Fund	Schedule 1	885,873,308.55	897,873,750.06
Reserves and Surplus		-	-
Earmarked / Endowment Funds	Schedule 2	45,917,336.00	57,390,979.00
Secured Loans and Borrowings		-	-
Unsecurred Loans and Borrowings		-	-
Deferred Credit Liabilites		-	-
Current Liabilites and Provisions	Schedule 3	23,042,802.91	43,044,042.24
TOTAL		954,833,447.46	998,308,771.30
ASSETS			
Fixed Assets (Net)	Schedule 4	62,758,303.79	32,922,983.23
Investments-From Earmarked / Endowment Funds		-	-
Investments-Others		-	-
Current Assets, Loans and Advances etc.	Schedule 5	892,075,143.67	965,385,788.07
TOTAL		954,833,447.46	998,308,771.30
Significant Accounting Policies	Annexure A		

As per our report of even date annexed herewith;

For JCR & Co. LLP
Chartered Accountants
FRN: 10270W/W100846

J C R & CO * DELHI * CHARTERED ACCOUNTANTS

(CA. Shiv Kailash)
Partner
Membership No.: 571995
UDIN: 23571995BHAZHW4842

Dated: 14.07.2023
Place: New Delhi

Accounts Manager
(NECTAR)

Sr. Admin Officer
(NECTAR)

Director General
(NECTAR)

Dr. ARUN KUMAR SARMA
Director General
NECTAR, Dept. of Science & Technology
Govt. of India

SIMON PHUKAN
Sr. Admin Officer
North East Centre for Technology Application and Reach
Department of Science and Technology, Govt. of India,
Survey of India Campus, Bonnie Brae Estate,
Barik Point, Shillong-793001, Meghalaya

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31.03.2023

Amount in Rs.

Particulars	Schedule	Current Year	Previous Year
INCOME			
Income From Promotional Activities	Schedule 6	693,509.00	1,102,069.80
Grants/Subsidies	Schedule 7	102,507,862.00	93,310,000.00
Fees / Subscriptions	Schedule 8	106,510.50	46,019.96
Income from Investment		-	-
Income from Royalty, Publication Etc.		-	-
Interest Earned	Schedule 9	15,805,702.00	16,819,166.00
Other Income (Including Partner Cont.)	Schedule 10	9,390,102.55	1,970,361.88
Increase/Decrease in Stock of Finished Goods & Work in Progress	Schedule 11	(334,100.77)	(969,724.69)
TOTAL (A)		128,169,585.28	112,277,892.95
EXPENDITURE			
Establishment Expenses	Schedule 12	47,318,013.00	38,519,199.00
Other Administrative Expenses etc.	Schedule 13	27,482,395.28	24,044,841.19
Expenditure on Grant ,Subsidies Etc.(Project Expenditures)	Schedule 14	79,480,389.00	55,821,071.00
Interest		-	-
Prior Period Expenditure	Schedule 15	796,891.00	113,846.00
Depreciation on (Net Total at the Year end)	Schedule 4	11,580,404.44	3,760,837.47
TOTAL (B)		166,658,092.72	122,259,794.66
Balance being excess of Income over Expenditure (A-B)			
Balance being excess of Expenditure over Income (B-A)		(38,488,507.44)	(9,981,901.71)
Surplus of Bamboo & Cane Development Institute (BCDI)		(499,764.52)	3,378,472.74
Balance being Surplus transferred to Corpus/Capital Fund			
Balance being Deficit transferred to Corpus/Capital Fund		(38,988,271.96)	(6,603,428.97)

As per our report of even date annexed herewith;

For JCR & Co. LLP
Chartered Accountants
FRN: 10270W/W100846

J C R & CO. CHARTERED ACCOUNTANTS DELHI

(CA. Shiv Kailash)
Partner
Membership No.: 571995
UDIN: 23571995BHAZHW4842

Dated: 14.07.2023
Place: New Delhi

Accounts Manager (NECTAR) | Sr. Admin Officer (NECTAR) | Director General (NECTAR)

Dr. ARUN KUMAR SARMA
Director General
NECTAR, Dept. of Science & Technology
Govt. of India

SIMON PHUKAN
Sr. Admin Officer
North East Centre for Technology Application and Reach
Department of Science and Technology, Govt. of India,
Survey of India Campus, Bonnie Brae Estate,
Barik Point, Shillong-793001, Meghalaya

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

RECEIPTS & PAYMENT ACCOUNT FOR THE YEAR ENDED 31.03.2023

Amount in Rs.

	RECEIPTS	Current Year	Previous Year
1	**Opening Balances**		
a)	Cash in hand	-	-
b)	Bank balances		
	i) In Current Accounts		
	ii) In Deposit Accounts (fd)	99,391,331.00	151,789,236.00
	iii) Savings Accounts	363,842,469.00	281,149,891.44
2	**Grants Received**		
a)	From Government of India	146,600,000.00	130,000,000.00
b)	From Government of India (Seed Project)	-	15,287,000.00
c)	MNCFC-Geospatial project	4,390,185.00	-
d)	PM-DeVINE Project (Donner)	2,000,000.00	
e)	MBB-Meghalaya project	20,170,000.00	
f)	National livestock mission (M/Fisheries)	5,000,000.00	
3	**Income on Investments from**		
a)	Earmarked/Endowment Funds		
b)	Own Funds		
4	**Interest Received**		
a)	On Bank Deposits	7,227,022.00	8,180,799.00
b)	On Savings accounts	6,960,191.00	9,848,985.00
c)	Loans Advances etc.	-	-
d)	Interest on HBA advance	-	-
e)	Interest on income tax refund	7,020.00	-
f)	Penal interest	-	-
5	**Other Income (Specify)**		
	Training fees	20,500.00	-
	Other Receipt (RTI)	52.00	-
	Misc. Receipts	87,282.50	33,519.96
	other receipts	58,025.00	12,500.00
	Guest House Charges	380,270.00	625,735.00
6	**Amount Borrowed**		
7	**Advances Received For Contracts**		
	JAK Machinery-(PBG)	-	130,980.00
8	**Any Other Receipts (Give Details)**		
a)	Partner Contribution	166,102.00	3,645,000.00
b)	Refund from TDA	2,586,330.54	6,435,306.00
c)	Realisation From Receivable Parties	937,656.00	2,125,379.00
d)	Amount received from SBI	370,421.00	-
e)	Refund from project advance	747,000.00	1,195,518.00
f)	Refund from income tax	99,550.00	-
g)	Refund from employees	494,099.00	373,390.00
h)	CPF & EMD-Received	-	1,028,868.00
i)	HGH Exhibition Fund received	913,305.00	-
j)	Refund from payables	1,400,000.00	-
	Total	663,848,760.04	611,862,107.40

	PAYMENTS	Current Year		Previous Year	
1	**Expenses**				
a)	Establishment Expenses		44,894,820.00		34,659,501.00
b)	Administrative Expenses		34,519,168.30		27,446,545.12
c)	Selling Expenses				
2	Payments made against funds for various projects				
	(A)EXPENSES ON OWN PROJECTS				
	Technologies-Delivery & Services	25,071,933.00		9,966,281.00	
	Technology Assistance to State Government	960,000.00		2,836,210.00	
	Ass to St Govern in technology Aided Decision Supp	6,834,286.00		9,659,730.00	
	Technologies-Consultation Projects	1,174,167.00		450,000.00	
	Technologies Demonstration and Induction	35,054,190.00		25,385,400.00	
	Technologies-Extension & consolidation	9,908,203.00		7,523,450.00	
	Technology Development Assistance-Loan	14,670,000.00		2,600,000.00	
	Inhouse projects (honey mission & saffron)	1,174,516.00	94,847,295.00	-	58,421,071.00
	(B)EXPENSES ON EARMARKED PROJECTS				
	1)Grant for SDR Nagaland & Meghalaya Police	-		-	
	2)Grant for Toss Project	1,190,156.00		7,404,873.00	
	2)Grant for Baans project	420,120.00		2,990,594.00	
	3)Geospatial Projects	5,429,424.00		-	
	4)PM-DeVINE Project (Donner)	768,107.00		-	
	5)MBB Meghalaya project	21,822,431.00		-	
	6)SEED-Project	2,467,365.00		-	
		-	32,097,603.00	-	10,395,467.00
3	**Expenditure on Fixed Assets & Capital Work-in Progress**				
a)	Purchase of Fixed Assets & WIP	47,125,018.00	47,125,018.00	-	18,211,808.00
		-		-	
4	**Refund of Unspent funds**				
a)	Unspent Funds refuned, G.O.I.	24,260,917.00			
b)	Interest on Unspenct fund refunded, G.O.I	464,688.00	-		
c)	Unspent Funds refunded PmDeVine project, G.O.I	1,092,433.00	25,818,038.00		-
5	**Finance Charges (Bank Charges)**	-	10,981.68	-	9,105.28
6	**Other Payments (Specify)**				
	HGH Exhibition expenses	2,976,781.00			
	CPF Payable & EMD-Refund/PBG	130,980.00		1,028,868.00	
	Advances to Employees	4,764,352.00		135,505.00	
	GST Payable	290,224.00		230,112.00	
			8,164,337.00		1,394,485.00
	Advances given to suppliers and others				
	Security Deposit	100,000.00	100,000.00		50,525.00
			-	-	-
7	**Closing Balances**				
a)	Cash in hand	-		-	
b)	Bank balances				
	i) In Current Accounts	-		-	
	ii) In Deposit Accounts	104,483,150.00		99,391,331.00	
	iii) Savings Accounts	271,788,348.06	376,271,498.06	363,842,469.00	463,233,800.00
	Total		663,848,760.04		611,862,107.40

As per our report of even date annexed herewith

For JCR & Co. LLP
Chartered Accountants
FRN: 102703W/W100846

(CA ... Kailash)
Partner
Membership No.: 571995
UDIN: 23571995BHAZHW4842

Dated: 14.07.2023
Place: New Delhi

Accounts Manager (NECTAR)

Sr. Adm Officer (NECTAR)

Director General (NECTAR)

Dr. ARUN KUMAR SARMA
Director General
NECTAR, Dept. of Science & Technology
Govt. of India

SIMON PHUKAN
Sr. Admin Officer
North East Centre for Technology Application and Reach
Department of Science and Technology, Govt. of India,
Survey of India Campus, Bonnie Brae Estate,
Barik Point, Shillong-793001, Meghalaya

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2023

Amount in Rs.

Schedule 1 - Corpus / Capital Fund	Current Year	Previous Year
NECTAR		
Opening Balance	897,873,750.06	881,248,755.03
Excess of Income Over Expenditure		
Add:-Received Capital fund from DST	40,000,000.00	40,000,000.00
Less: Deferred Revenue Grant	(8,867,064.55)	(747,901.98)
Less:-Capital Grant Refundable	(4,145,105.00)	(16,023,674.02)
Less: Fund reufnd to DST		-
TOTAL	924,861,580.51	904,477,179.03
Excess of Expenditure over Income	(38,988,271.96)	(6,603,428.97)
TOTAL	885,873,308.55	897,873,750.06
Closing Balance	**885,873,308.55**	**897,873,750.06**
Total	**885,873,308.55**	897,873,750.06

Schedule 2 - Earmarked/Endowment Funds	Current Year	Previous Year
a) Opening Balance of the funds	57,390,979.00	52,945,946.00
b) Additions to the Funds:		
i) Donations /Grants		
a) Grants for SEED Project	-	15,287,000.00
b) Grants for PM DeVINE Project	907,567.00	
c) Grants for Geo-Spatial Project	4,390,815.00	
d) Grants for Meghalaya MBB Project	20,170,000.00	
e) Grants for National Livestock Mission	5,000,000.00	
f) DC&H (HGH Exhibition)	913,305.00	
ii) Income from investments made on accunt of Fund	-	-
iii) Other Additions (Specify)	-	-
TOTAL (a+b)	88,772,666.00	68,232,946.00
c) Utilization /Expenditure towards objectives of funds		
i) Capital Expenditure		
a) Toss/Baans/SDR Scheme	6,772,793.00	8,962,273.00
ii) Revenue Expenditure		
a) Toss/Baans/Sdr Scheme	108,000.00	1,879,694.00
b) Seed Project	2,562,817.00	-
c) PM DeVINE Project	768,107.00	-
d) Geo Spatial Project	5,758,873.00	-
e) Meghalaya MBB Project	23,839,361.00	-
f) NERAMAC CBBO Project	50,644.00	-
g)HGH Exhibitions Epenses	2,994,735.00	-
TOTAL (c)	42,855,330.00	10,841,967.00
NET BALANCE AT THE YEAR END (a + b– c)	45,917,336.00	57,390,979.00

Notes

1) Disclosures shall be made under relevant Heads based on conditions attaching to the Grants.
2) Plan Funds received from Central /State Governments are to be shown as separate Funds and not to be mixed up with any other Funds.

J C R & CO CHARTERED ACCOUNTANTS DELHI

NECTAR Dept. of Science & Technology Govt. of India North East Centre for Technology Application & Reach

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2023

Amount in Rs.

Schedule 3 - Current Liabilities and Provisions	Current Year	Previous Year
A. CURRENT LIABILITIES		
1. Acceptances	-	-
2. Sundry Creditors:		
a) For Goods	855,506.00	6,345,426.00
b) Others	99,567.00	912,719.00
3. Advance Received		
Partner contribution payable	820,785.00	820,785.00
4. Interest accrued but not due on:	-	-
a) Secured Loans/borrowings		
b) Unsecured Loans /borrowings		
5. Statutory Liabilities:		
a) Over dues	-	-
b) Others: TDS Payable	2,764,510.00	639,475.00
c) GST Payable	37,970.00	36,825.00
d) EPF Payable	-	151,290.00
6. Other current Liabilities		
Administrative Expenses Payable (Annexure-1)	1,348,250.00	523,538.00
Establishment Expenses Payable (Annexure-2)	3,714,353.00	5,247,261.00
Bamboo & Cane Development Institute (BCDI)	3,510,181.91	2,451,369.22
SDR technology	9,434,880.00	9,434,880.00
Grant-In-Aid Capital Refundable	-	16,023,674.02
Earnest Money-		
Security Retention Money- RS Softech	46,800.00	46,800.00
OVN Bio Energy P.Ltd. ,Gurgaon	100,000.00	100,000.00
Sree Engineers, Hyderabad	100,000.00	100,000.00
Deva Bamboo & Allied Ind., Imphal	5,000.00	5,000.00
Dhanjal Mechanical Works P. Ltd.	100,000.00	100,000.00
Prince Carbon & Charcoal Ind.	5,000.00	5,000.00
R.D. Industrial Corp., Kolkatta	100,000.00	100,000.00
TOTAL (A)	23,042,802.91	43,044,042.24
B. PROVISIONS		
1. For Taxation	-	-
2. Gratuity	-	-
3. Superannuation /Pension	-	-
4. Accumulated Leave Salary / Encashment	-	-
5. Trade Warranties/Claims	-	-
6. Others (Specify)	-	-
TOTAL (B)	-	-
TOTAL (A+B)	23,042,802.91	43,044,042.24

J.C.R. & CO. CHARTERED ACCOUNTANTS DELHI

NECTAR

Amount in Rs.

SCHEDULE 8-FIXED ASSETS-NECTAR		GROSS BLOCK					DEPRECIATION						NET BLOCK	NET BLOCK
DESCRIPTION	Rate of Depre-ciation	Cost / valution as at beginning of the year 01.04.2022	Additions during the year 01.04.2022 30.09.2022	Additions during the year 01.10.2022 - 31.03.2023	Deductions during the year 01.04.2022 - 31.03.2023	Cost / valuation at the year end 31.03.2023	As at beginning of the year 01.04.2022	On Opening balance 01.04.2022	On Additions during the year 01.04.2022 - 30.09.2022	On Additions during the year 01.10.2022 31.03.2023	Depreciation for the year	Total up to the year end 31.03.2023	As at the current year end 31.3.2023	As at the current year end 31.3.2022
A. FIXED ASSETS														
1. LAND														
2. BUILDING														
a) On Freehold Land		-	-	-	-	-		-	-	-	-	-	-	
b) On Leasehold Land		-	-	-	-	-		-	-	-	-	-	-	
c) Ownership Flats/Premises		-	-	-	-	-		-	-	-	-	-	-	
d) Superstructures on Land not belonging to the entity		-	-	-	-	-			-	-	-	-	-	
e) Interior Works	10%	2,230,595.09	-	-	-	2,230,595.09	1,245,231.79	98,536.33	-	-	98,536.33	1,343,768.12	886,826.97	985,363.30
								-		-		-		-
3. Plant Machinery & Equipment	15%	11,170,291.59	-	497,100.00	-	11,667,391.59	5,124,120.93	506,925.60	-	17,032.50	923,958.10	6,048,079.02	5,619,312.57	6,046,170.66
4. Vehicles	15%	889,675.00	-	-	-	889,675.00	524,527.99	54,772.06	-	-	54,772.06	579,300.05	310,374.95	365,147.02
5. Furniture & Fixtures	10%	3,787,484.32	151,800.00	1,670,327.00	-	5,609,611.32	1,432,552.22	235,493.21	15,180.00	-	250,673.21	1,683,225.42	3,926,385.90	2,354,932.10
6. Office Equipment	15%	3,966,991.77	5,202,013.00	25,317.00	-	9,194,321.77	2,562,287.77	210,705.60	780,301.95	-	991,007.55	3,553,295.32	5,641,026.45	1,404,704.00
7. Computer/ Peripherals	40%	22,697,243.07	-	11,716,540.00	-	34,413,783.07	14,161,629.91	3,414,245.26	-	-	3,414,245.26	17,575,875.18	16,837,907.89	8,535,613.16
8. Electric Installations		-	-	-	-	-	-	-	-	-	-	-	-	-
9. Library Books	100%	15,904.67	-	-	-	15,904.67	15,904.67	-	-	-	-	15,904.67	-	-
10. Tubewell & W. Supply		-			-	-		-	-	-		-	-	-
11. Fire Alarm Systems	15%	74,395.36	-	-	-	74,395.36	54,968.66	2,914.01	-		2,914.01	57,882.67	16,512.69	19,426.70
12. Intangible Assets- Website	25%	13,437,241.00	137,261.00	17,030,025.00	-	30,604,527.00	8,197,818.69	1,309,855.58	34,315.25	1,311,245.50	2,655,416.32	10,853,235.00	19,751,292.00	5,239,422.31
13. Phantam 4 Drones	40%	9,411,849.00	-	896,750.00	-	10,308,599.00	1,439,645.03	3,188,881.60	-	-	3,188,881.60	4,628,526.63	5,680,072.37	7,972,203.97
TOTAL OF CURRENT YEAR (A)		67,681,670.87	5,491,074.00	31,836,059.00	-	105,008,803.87	34,758,687.65	9,422,329.25	829,797.20	1,328,278.00	11,580,404.44	46,339,092.08	58,669,711.79	32,922,983.23
							-							
B. CAPITAL WORK IN PROGRESS		-		4,088,592.00	-	4,088,592.00	-	-	-	-	-	-	4,088,592.00	-
TOTAL (A+B)		67,681,670.87	5,491,074.00	35,924,651.00	-	109,097,395.87	34,758,687.65	9,422,329.25	829,797.20	1,328,278.00	11,580,404.44	46,339,092.08	62,758,303.79	32,922,983.23

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2023

Amount in Rs.

Schedule 5 - Current Assets, Loans, Advances Etc.	Current Year	Previous Year
A. CURRENT ASSETS		
1. Inventories:		
a) Stores and Spares	-	-
b) Loose Tools	-	-
c) Stock-in-trade		
Finished Goods	2,874,229.27	3,208,330.04
Work-in-progress	-	-
Raw Materials	-	-
d) Software Defined Radio-SDR	-	5,265,000.00
2. Accounts Receivables:(Promotinal Activities)		
a) Debts Outstanding for a period exceeding six months	25,320,388.54	25,481,261.54
b) Others	8,327.00	311,888.00
3. Cash balances in hand		
(including cheques /drafts and Imprest)	-	-
4. Bank Balances:		
a) With Scheduled Banks:		
On Current Accounts	-	-
On Deposit Accounts (Short term deposits)	104,483,150.00	99,391,331.00
On Savings Accounts	271,788,348.06	363,842,469.36
On Bamboo & Cane Development Institute (BCDI)	6,388,890.13	5,829,841.96
b) With non-Scheduled Banks:		
On Current Accounts	-	-
On Deposit Accounts	-	-
On Savings Accounts	-	-
5. Post Office-Savings Accounts	-	-
TOTAL (A)	410,863,333.00	503,330,121.90

J C R & CO. CHARTERED ACCOUNTANTS DELHI

NECTAR Dept. of Science & Technology Govt. of India

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2023

Amount in Rs.

Schedule 5 - Current Assets, Loans, Advances Etc	Current Year	Previous Year
B. LOANS, ADVANCES AND OTHER ASSETS		
1. Loans		
a) Technology Development Assistance Loan	457,938,331.00	445,854,661.50
b) Staff and other loans		
a) Staff : Advance (Annexure - 3)	4,868,353.00	255,466.00
b) Other: Entities engaged in activities/objectives similar to that of the		
c) Others-Advacne to CPWD	-	-
value to be received.		
a) On capital Account		
b) Prepayments for Projects		
c) Security Deposits		
Security Deposit:E-Sign (CDAC)	100,000.00	-
Security Deposit: MTNL	1,500.00	1,500.00
Security Deposit: Rent TDC Guwahati	166,662.00	-
Security Deposit: Qutab Service Station	10,000.00	10,000.00
Security Deposit: NECTAR G/H	195,000.00	195,000.00
Security Deposit: BSNL	2,499.00	2,499.00
Security Deposit: Water Bottel	3,000.00	3,000.00
Security Deposit: SOI Shillong	120,000.00	120,000.00
Security Deposit: GAS shilong	3,550.00	3,550.00
Security Deposit: APDCL (Electricity)	82,500.00	82,500.00
d) Others		
Arbitration expenses recovery	54,313.00	54,313.00
Interest Recovery from SBI	-	370,421.00
Recovery from TIFAC	911,796.00	911,796.00
Insolvency Charges	45,436.00	45,436.00
Prepaid Insurance Charges	760.00	4,115.00
Prepaid AMC Charges	11,472.00	7,010.00
Land Revenue Charges	2,000.00	3,000.00
Prepaid Website Maintenance Charges	1,445.00	-
SDR Installation Arunachal Pradesh	435,963.00	435,963.00
A. B. Composites Pvt. Ltd.	1,797,982.95	1,797,982.95
Advances to Suppliers and Others (Annexure-5)	5,350,532.00	5,350,532.00
3. Income Accrued		
a) On Investments from Earmarked/ Endowment Funds		
b) On Investment – Others	-	-
c) On Loans and Advances		
d) Others: Interest Accrued	5,020,857.00	2,944,700.00
4. Claims Receivable		
GST Receivable	4,071,634.72	3,496,576.72
TDS (A.Y.- 2021-22)	-	93,630.00
TDS (A.Y.- 2022-23)	-	12,014.00
TDS (A.Y.- 2023-24)	16,224.00	-
TOTAL (B)	**481,211,810.67**	**462,055,666.17**
TOTAL (A+B)	**892,075,143.67**	**965,385,788.07**

J C R & CO. CHARTERED ACCOUNTANTS DELHI

NECTAR Dept. of Science & Technology Govt. of India

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31.03.2023

Schedule 6 - Income From Promotional Activities	Current Year	Previous Year
1. Income from Promotional Activities		
a) Sale of Finished Goods/Traded	393,300.00	1,102,069.80
b) Sale of Raw Material	-	-
c) Sale of Scraps	-	-
d) Miscellaneous	-	-
2. Income from Services		
a) Labors and Processing Charges	-	-
b) Professional/Consultancy Services	225,000.00	-
c) Agency Commissions and Brokerage	-	-
d) Maintenance Services (Equipment/Property)	-	-
e) Others (Specify)	75,209.00	-
TOTAL	**693,509.00**	**1,102,069.80**

Schedule 7 - Grants / Subsidies	Current Year	Previous Year
(Irrevocable Grants & Subsidies Received)		
1. From Central Government	-	-
Grants in Aid (General)	76,600,000.00	75,000,000.00
Less: Returned	(3,381.00)	-
Grant in Aid (Salary)	30,000,000.00	15,000,000.00
Less: Returned	(4,088,757.00)	-
2. Cetral Government other projects	-	-
3. State Government projects	-	3,310,000.00
4. Institutions/Welfare Bodies	-	-
5. International Organizations	-	-
6. Others (Specify)	-	-
TOTAL	**102,507,862.00**	**93,310,000.00**

Schedule 8 - Fees / Subscriptions	Current Year	Previous Year
1. Entrance Fees		
2. RTI Receipts	52.00	-
3. Seminar/Program Fees	20,500.00	-
4. Processing Fees	27,933.50	33,519.96
5. Others (Tender Money)	58,025.00	12,500.00
TOTAL	**106,510.50**	**46,019.96**

J C R & CO. CHARTERED ACCOUNTANTS DELHI

NECTAR Dept. of Science & Technology Govt. of India

Schedule 9 - Interest Earned	Current Year	Previous Year
1. On Term Deposits:		
a) With Scheduled Banks	9,190,504.00	8,126,270.00
b) With Non-Scheduled Banks	-	-
c) With Institutions	-	-
d) Others	-	-
2. On Savings Accounts:		
a) With Scheduled Banks	6,608,178.00	8,692,896.00
b) With Non-Scheduled Banks	-	-
c) Post Office Savings Accounts	-	-
d) Others	-	-
3. On Loans:		
a) Employees/Staff	-	-
b) Others (Long term advances)	-	-
4. Interest on Debtors and Other Receivables		
a) Penal Interest	-	-
b) Interest on Income tax refund	7,020.00	-
TOTAL	15,805,702.00	16,819,166.00

Schedule 10 - Other Income	Current Year	Previous Year
1. Profit on Sale/ disposal of Assets	-	-
a) Owned assets	-	-
b) Assets acquired out grants, of received free of cost	-	-
2. Export Incentives realized		-
3. Fees for Miscellaneous Services-(Agriculture Project)	-	-
4. Miscellaneous Income	-	-
Deferred Revenue Grant	8,867,064.55	747,901.98
Other Receipt	329,977.00	852,190.00
User Charges	134,570.00	325,814.00
Misc. Receipts	58,491.00	44,455.90
TOTAL (A)	9,390,102.55	1,970,361.88
Partner Contribution	-	-
TOTAL (B)	-	-
Refunds from Projects-Grant	-	-
TOTAL (C)	-	-
Refund of Working Capital Loan		
TOTAL (D)	-	-
Total (A) + (B) + (C)+(D)	9,390,102.55	1,970,361.88

J C R & CO. CHARTERED ACCOUNTANTS DELHI

NECTAR Dept. of Science & Technology Govt. of India

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31.03.2023

Schedule 11 - Increase / (Decrease) in stock of Finished Goods & Work in Progress	Current Year	Previous Year
a) Closing stock		
Finished Goods	2,874,229.27	3,208,330.04
Work-in-progress	-	-
b) Less: Opening Stock	-	-
Finished Goods	3,208,330.04	4,178,054.73
Work-in-progress	-	-
NET INCREASE/(DECREASE) [a-b]	(334,100.77)	(969,724.69)

Schedule 12 - Establishment Expenses	Current Year	Previous Year
1. Salaries	39,753,801.00	30,609,577.00
2. Allowances and Leave encashment	751,730.00	207,826.00
3. Employer Contribution to Provident Fund	612,009.00	1,676,504.00
4. Wages	924,491.00	388,676.00
5. Expenses on Employees' Retirement and Terminal Benefits	1,241,942.00	4,156,351.00
6. Staff Welfare Expenses	-	-
7. NPS Contribution	3,630,315.00	1,242,012.00
8. Others (Specify)	-	-
Medical Reimbursement	212,244.00	169,715.00
Tuition Fee / CEA	166,500.00	-
EPF Administration Charges	24,981.00	68,538.00
TOTAL	47,318,013.00	38,519,199.00

J C R & CO. CHARTERED ACCOUNTANTS DELHI

NECTAR Dept. of Science & Technology Govt. of India

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31.03.2023

Schedule 13 - Administrative Expenses etc.	Current Year	Current Year
a) Repairs and Maintenance	394,319.00	383,661.00
b) Rent, Rates and Taxes	793,029.00	1,165,020.00
c) Car Hire Charges	1,377,853.00	806,241.00
d) Postage & Courier Charges	113,280.00	104,457.00
e) Printing and Stationary	693,927.00	361,604.00
f) Traveling Expenses (Domestics)	2,840,418.00	1,451,849.00
g) Expenses on Seminar/Workshops /Conclave	2,369,703.00	8,158,198.00
h) Meeting Expenses	377,908.00	60,374.00
i) Audit Fee	105,800.00	97,500.00
j) Advertisement Charges	153,943.00	293,221.00
k) Conveyance Charges	88,589.00	9,179.00
l) Telephone and Communication Charges	118,213.00	50,484.00
m) Internet Charges	941,465.00	889,017.00
n) Hardware & Internet Charge	-	24,000.00
o) Interest/demand	-	-
p) Legal & Professional Charges	1,447,094.00	1,314,277.00
q) Testing Charges	50,327.00	29,590.00
r) Arbitration Expenses	306,750.00	8,250.00
s) Membership & Fees	457,092.00	91,696.00
t) AMC Charges	7,783.00	7,358.00
u) Shipping/Transportation Charges	12,683.00	95,865.00
v) Website Charges	134,811.49	25,174.00
w) Promotion & Publicity	215,200.00	228,656.00
x) MISC. Office Expenses	809,000.98	872,160.00
y) Electricity	152,416.00	89,004.00
z) Bank Charges	10,981.81	9,105.28
aa) Newspaper & periodicals	39,122.00	13,141.00
ab) Staff Welfare	-	73,015.00
ac) Exhibition Expenses	230,345.00	795,593.00
ad) Honorarium -Non Official	89,000.00	69,500.00
ae) Security Charges	280,541.00	269,280.00
af) Gest House Maintenace Expense	243,984.00	284,110.00
ag) Insurance Charges	12,657.00	16,124.91
ah) Training Expenses	4,267,010.00	263,698.00
ai) TDC Guwahati Expenes	3,821,751.00	2,644,308.00
aj)Renovation of NECTAR office Shillong & Quarters	278,707.00	460,186.00
ak)House Keeping Charges	275,975.00	227,788.00
al) Consumable Items	145,862.00	263,640.00
am) HGH Exhibation Expenses	-	2,038,517.00
an) Consultancy Charges/Service Charges	3,173,414.00	-
ao)E-office Service Charges	651,441.00	-
TOTAL	27,482,395.28	24,044,841.19

J C R & CO. CHARTERED ACCOUNTANTS DELHI

NECTAR Dept. of Science & Technology Govt. of India

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31.03.2023

Schedule 14 - Expenditure on Grants , Subsidies etc.	Current Year	Current Year
a) Grants given to Institutions/Organizations		
Grant (Annexure 4)	78,255,779.00	55,821,071.00
Loan	-	-
Other Project Expenses	1,224,610.00	-
b) Subsidies given to Institutions/Organizations		
TOTAL	79,480,389.00	55,821,071.00

Schedule 15 - Prior Period Expenses	Current Year	Current Year
a) Taxes	-	1,000.00
b) Misc Office Expense	18,900.00	-
c) Children Education Fees	-	9,000.00
d) Travelling Expenses Domestics	-	2,592.00
e) Legal & Professional fess	321.00	56,003.00
f) News Paper & Periodicals	750.00	6,750.00
g) Telephone Expenses	35,658.00	9,891.00
h) Repair & Maintenance Expenses	4,700.00	4,130.00
i) Rent Warehouse/Shillong office	62,667.00	-
j) Printing Charges	2,400.00	-
k) Security Charges	24,480.00	24,480.00
l) Electricity Charges	243,361.00	-
m)Gratuity	173,654.00	-
n)Project Expenses	230,000.00	-
TOTAL	796,891.00	113,846.00

J C R & CO CHARTERED ACCOUNTANTS DELHI

NECTAR Dept. of Science & Technology Govt. of India

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

Annexure - 1

Administrative Expenses Payable

PARTICULARS	Current Year	Previous Year
Conveyance expenses Payable	2,524.00	1,758.00
Miscellaneous Office Expenses Payable	62,190.00	-
Telephone Expenses Payable	-	1,508.00
Electricity Payable	35,935.00	3,381.00
Tranvelling Expenses Payable (Domestic)	248,182.00	196,083.00
Security Charges Payable	66,627.00	24,480.00
Administrative Expenses Payable	23,965.00	11,399.00
Petrol / diesel Expenses Payable		26,587.00
Postage & Courier Charges Payable	1,404.00	-
Internet Charges Payable	35,006.00	30,679.00
House Keeping Charges Payable	25,494.00	22,353.00
Legal & Professional Fees Payable	105,480.00	49,550.00
Workshop / Exhibition Exp Payable	-	155,760.00
News paper and periodical exp payable	1,080.00	-
Honorarium Charges payable	2,500.00	-
Car hire Charges payable	221,422.00	-
Intern Stipend payable	104,739.00	-
Salary payable for project staff	411,702.00	-
TOTAL	1,348,250.00	523,538.00

Annexure - 2

Establishment Expenses Payable

PARTICULARS	Current Year	Previous Year
Nps/EPF Payable	643,394.00	439,155.00
Salary Payable	2,984,791.00	2,790,721.00
Gratuity Payable	-	2,017,385.00
Wages Payable	86,168.00	-
TOTAL	3,714,353.00	5,247,261.00

Annexure - 3

Staff Advance

PARTICULARS	Current Year	Previous Year
Petty Cash Advance:		
BK Manthan	3,000.00	3,000.00
Rohit Sharma	-	20,000.00
Garima Vashisth	-	16,773.00
Gavin Vandroff	14,892.00	-
Fedlia Diengdoh	20,000.00	-
Bharat Phukan	15,000.00	-
Ajit kumar	20,000.00	-
HBA advance		-
Ankit Shrivastava	2,330,000.00	-
Somanath Nath	2,179,000.00	-
Tour & Other Advance:		
B K Manthan	24,000.00	24,000.00
Manoranjan Deka	9,500.00	-
Ravi Singh	11,840.00	11,840.00
Satyaranjan Das	-	15,000.00
Ram Kumar	-	8,000.00
Virender Kumar Yadav	-	4,500.00
Simanta Das	60,000.00	-
Rohit Sharma	-	30,000.00
Simon Phukan	30,000.00	25,000.00
Phidalin lyngdoh	-	15,000.00
Rakesh Kumar Sarmah	70,000.00	-
Krishan Kumar	-	962.00
Ravi Kumar Singh	81,121.00	81,121.00
Bharat Phukan		270.00
TOTAL	4,868,353.00	255,466.00

NORTH EAST CENTRE FOR TECHNOLOGY APPLICATION AND REACH

Annexure - 4

Grant

PARTICULARS	Current Year	Previous Year
Ass to St Govern in Technology Aided Decision Supp		
Honey Testing Laboratory-Dimapur(NBHM)	2,100,000.00	2,100,000.00
IOT Based Nurse Calling System	1,000,000.00	-
Promoting Techno-Entrepreneurship in NER	-	3,440,000.00
Mobile Clinic Patient Monitoring System	996,286.00	-
Patient Monitoring System	2,298,000.00	
Solar Powered Cold Storage-Serchhip,Mizoram	440,000.00	1,760,000.00
Total (A)	**6,834,286.00**	**7,300,000.00**
Technology Assistance to State Government		
Tura CCTV	-	11,210.00
Motif Design and Replication System of traditional	960,000.00	-
Total (B)	**960,000.00**	**11,210.00**
Technology Consultation Projects		
DPR-Preparatoin-KVIC		160,000.00
Physiochem & Shelf Life Evaluation of Products-NIFT	209,167.00	290,000.00
Production & Marketing of Speciality Tea-AAU,Jorhat	627,000.00	1,463,000.00
Dev.of Food Box amd Liquid Container-IIT Delhi	338,000.00	-
Total (C)	**1,174,167.00**	**1,913,000.00**
Technology Demonstartin and Induction Grant		
CSIR-CIMAP(Developement of Solar Aroma Distillation	191,400.00	1,359,200.00
Development of Kombucha-Paras Biosciences	760,000.00	760,000.00
Development of Virtual Laboratory-Assam	403,200.00	1,612,800.00
Dev.of Software for Gamusa Loom Type	919,000.00	610,000.00
Infra Upgradation of Textile & Fashion- RKM	1,000,000.00	1,000,000.00
Integrated Farming System for Marginal Farmers	420,000.00	1,680,000.00
Low Cost Water Treatment Plant-NIT,Manipur	-	1,408,000.00
Manuf of Arecanut Leaf Plate, Tripura	-	1,000,000.00
Mobile Proceesing Unit in NE for Fruits & Veg-CFTRI	-	4,812,000.00
Oxygen Concentrator-GRS India P.Ltd.	-	1,500,000.00
Organic Cultivation of Mushroom-Saitul,Mizoram	313,000.00	1,180,000.00
Setting Up of Ginger & Turmeric Processing -Kamrup	669,000.00	669,000.00
Setting Up Smoking Unit with Electric Smoker-DO Nam	-	303,600.00
Setting Up Unit for Maufactue Bio-Sampler(Aavya)	1,500,000.00	1,000,000.00
Tableware Using Pineapple Leaves-Yuvraj Ind.	-	900,000.00
Tumor Margin Detection-GRS India P.Ltd.	495,000.00	1,980,000.00
Waste to Wealth-Udalguri Farmers Coop Society	952,513.00	970,800.00
Waste to Wealth Value Addiion on Agri-Wastes CAU	-	880,000.00
Aerostatic Drones for Forest Surveillanc	944,000.00	-
Agriculture Integrated Farming Sikkim	315,200.00	-
Anti Microbial Coating(Mask)-3D Pasma Technology	517,912.00	-
Biodegradable Low-Cost Kit (IIT-Delhi)	246,000.00	-
Catalyzing the Traditional Kouna Craft	917,440.00	-
Development of Illicium Griffithi - Monyul	920,000.00	-
Development of Proejct Monitoring Dashboard -CEM	752,435.00	-
Dev.Instantaneous Hypochlorite Generator-AMPRICARE	789,600.00	-

J C R & CO. CHARTERED ACCOUNTANTS

NECTAR

Dev. of Training / Production-Bell Met Unit-IIT Guw	2,081,616.00	-
Dimoria Eri Cluster	320,000.00	-
Estblishment of Spice & Aromatic Distillation Unit	718,000.00	-
Extraction and Processing of Lotus Fiber	1,940,000.00	-
Extraction of Pineapple Leaf Fiber-NIT Megh.	506,352.00	-
Hydraulic Ram Pump Irrigation	176,927.00	-
Innovatioin in Colored Pearls Production-Cotton Uni	260,000.00	-
Integrated Dairy Product (Dikhomukhu)	1,250,000.00	-
Integrated Innovations Utlising Thermal Engery Sto	1,980,000.00	-
Manufacturing of Compostable Bioplastic- Ecostarch	1,880,000.00	-
Multipurpose Eco Enzyme Processing Unit (MEEPU)	787,140.00	-
Mushroom Culitvation -Assam (MDF)	1,500,000.00	-
Mushroom Spawn Production Unit	1,312,000.00	-
Recycling of Wast Wood to Make Furniture	1,000,000.00	-
Setting Up Ginger & Turmeric Proc.Unit Asaam	960,000.00	-
Setting Up Hand and Homemade Chocolate Making Plant	555,600.00	-
Setting Up Mustard Processing Unit-Data Consultancy	852,000.00	-
Setting Up Product Dev Unit-NER	2,000,000.00	-
Setting Up Rubber Plants-Ichamati Megh	469,680.00	-
Smart Water Tower-RKM Sohra	198,996.00	-
Solar Thermal Dryer Installtion-CSIR-CSMCRI	350,179.00	-
Tableware Using Pineapple Leaves-Yuvraj Ind.	900,000.00	-
Total (D)	**35,054,190.00**	**23,625,400.00**
Technology Delivery & Services		
Developing Habit of Sericulture -Assam Silk-SEWA	(747,000.00)	747,000.00
Fruit Mapping Project	-	22,522.00
Training & Skill Development at IITDC, Agartala	7,340,418.00	7,559,730.00
Development of Artistic Textile Cluster-APRINS	-	1,961,400.00
Mushroom Culitvation -Assam (MDF)	-	1,000,000.00
OXON Mentors AtmanirbharNE(Mindshare)	1,254,000.00	836,000.00
Rain Water Harvesting, Nursery & Plantation- Ramakr	-	1,860,966.00
Saffron Farming in North East-Water Bank Foundation	-	1,267,524.00
Skill Development Training-NIT (A.P.)	5,463,100.00	2,825,000.00
Skillpreneurship Programme in NER-EDI	515,000.00	-
Training on Banana Fiber Handloom and Handicraft-	327,500.00	-
Training Programme on Micropropagation	162,035.00	-
Promoting Techno-Entrepreneurship in NER	4,226,590.00	-
Awakening the Hiden Culture NER Music for Living	1,000,000.00	-
Bee Keeping Trainings-Nagaland	225,500.00	-
Creating Nutritional Superfood From Mushrooms	958,800.00	-
Digitization and Documentation of Culatural Heritag	220,000.00	-
Drone Awareness Training Programme	938,490.00	-
Livelihood Generation Through Tofu Value Addtion	450,000.00	-
Manu.Arecanut Leaf Plate-FISS	990,500.00	-
Manuf of Arecanut Leaf Plate, Tripura	1,000,000.00	-
Total (E)	**24,324,933.00**	**18,080,142.00**

Technology Extension & Consolidation		
Banana Food & Fibre Extraction-Khankho-Lom	1,435,680.00	957,120.00
Cocoa Primary Processing and Value Addition	680,000.00	-
Eco- Dev of Rural Farmers Mushroom Cultivation	1,175,000.00	-
Eco-Friendly Cowdung Pots for Nursery	575,193.00	-
Empowerment of Rural Farmers Tech Intervention-Must	822,500.00	-
Livelihood Enhancement of of Rulral Farmers-	796,330.00	796,330.00
Preprocessing Centre for Horticultural Produce	1,000,000.00	1,000,000.00
Processing of Various Fruits & Vegetables-NUNSEI	2,500,000.00	-
Tech. Intervention& Upgrad in Yoga Mat Prod-Simang	640,000.00	807,869.00
Yoga Mat Water Reed(Kouna) Env & HR Centre	283,500.00	-
Scientific Beekeeping for Develop of RC-Kanyaka/CRE	-	1,330,000.00
Total (F)	**9,908,203.00**	**4,891,319.00**
TOTAL EXPENDITURE ON GRANTS (A+B+C+D+E+F)	**78,255,779.00**	**55,821,071.00**

Annexure - 5

Advances to Suppliers and Others	**Current Year**	**Previous Year**
Hari Om Sales and Service	2,860,089.00	2,860,089.00
S. P. Engineers	1,658,197.00	1,658,197.00
FPV Model International	83,667.00	83,667.00
RC Bazar	87,388.00	87,388.00
Vyom Vista	171,750.00	171,750.00
Karunesh Enterprises	489,441.00	489,441.00
TOTAL	**5,350,532.00**	**5,350,532.00**

ANNEXURE A

NORTH CENTRE FOR TECHNOLOGY APPLICATION AND REACH (NECTAR)

SIGNIFICANT ACCOUNTING POLICIES

1. The Society has adopted accrual basis of accounting. The annual accounts have been prepared in the uniform format of accounts applicable to Central autonomous bodies.
2. Fixed assets are stated at cost less accumulated depreciation. Cost comprises the purchase price and any other cost of bringing the asset to its present location and condition.
3. Depreciation on fixed assets is computed on the written down value (WDV) method at the rates and in the manner prescribed under the provisions of Income Tax Act.
4. Retirement benefits in the form of provident fund and superannuation fund are defined benefit contribution schemes and the contributions are charged to the statement of income and expenditure in the year when such contribution is due.
5. Gratuity benefits is accountant for and paid as per the internal calculations made by the management without any actuarial valuation method.
6. Inventory is valued at Cost Price or NRV, whichever is lower.
7. Amount released under various projects are accounted as expenditure of the year in which payment is made irrespective of the fact whether the amount is fully utilized towards the specific objective or not.
8. All disbursements (irrespective of its utilization) for projects are treated as expenditure during the financial year and assets created, if any, out of the said disbursement to the project, are not accounted for as assets in the books of the society.

For JCR & Co. LLP
Chartered Accountants
Firm Registration No.: 105270W/W100846

J C R & CO. DELHI CHARTERED ACCOUNTANTS

(CA. Shiv Kailash)
(Partner)
MRN: 571995
UDIN: 23571995BHAZHW4842

Accounts Manager (NECTAR)

Sr. Admin Officer (NECTAR)

Director General (NECTAR)

SIMON PHUKAN
Sr. Admin Officer
North East Centre for Technology Application and Reach
Department of Science and Technology, Govt. of India,
Survey of India Campus, Bonnie Brae Estate,
Bank Point, Shillong-793001, Meghalaya

Dr. ARUN KUMAR SARMA
Director General
NECTAR, Dept. of Science & Technology
Govt. of India

Date: 14.07.2023
Place: New Delhi

(An Autonomous body under Department of Science and Technology, Govt. of India)

Headquarter :

Survey of India Campus,
Bonnie Brae Estate,
Barik Point,
Shillong-793001,
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+91-364-2505034 / 2506085

Guwahati Office Address :

Technology Demonstration Centre
North East Centre for Technology Application
& Reach (NECTAR)
C/o Assam Science Society
Near Regional Science Center
Jawahar Nagar, Khanapara
Guwahati — 781 022

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2nd Floor,
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Agartala Office Address :

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