

## Annual Report 2023-2024

### North East Regional Research and Resource Centre, Miranda House

#### Overview

North East Regional Research and Resource Centre (NERRRC), is an undergraduate Research Centre at Miranda House, that has been established with funding from the North Eastern Council Shillong, Government of India. It is the first of its kind UG multidisciplinary Research Centre within Delhi University College. The primary objective is to cultivate research, innovation, and entrepreneurial endeavours, particularly among young women. NERRRC acts as a dedicated research and resource hub focusing on women-centric research, innovation, and entrepreneurship in the North Eastern Region (NER) at Miranda House. The initiative aims to foster closer connections and understanding among students, recognising the youth as pivotal ambassadors. Through active engagement, knowledge sharing, and practical research methodologies, NERRRC endeavours to bridge gaps and promote collaboration, envisioning a vibrant platform for learning and growth.

### 1. Incubation and Start-up Initiatives

#### Project Bloom

Project Bloom is a bamboo incubation initiative by the North Eastern Regional Research and Resource Centre (NERREC), initiated by Karishma Brahma and Bidyaluxmi of Miranda House. The project aims to promote sustainable bamboo-based products and create employment opportunities for women in nearby villages through the skill hub of Miranda House.

The main objectives of Project Bloom are:

- Promote sustainable bamboo products: Provide support and resources to focus on developing sustainable bamboo-based products and services.
- Empower women: Promote women's entrepreneurship and economic empowerment through the development of sustainable bamboo-based businesses.

Project Bloom provides incubation services to bamboo products, including mentorship, business development support, access to finance, and networking opportunities. The program is designed to help develop innovative and sustainable bamboo-based products and services that meet market demand. Project Bloom aims to promote the development of the bamboo industry, empower women, and support the incubation and growth of sustainable bamboo start-ups. By adopting a comprehensive approach that focuses on incubation, value chain development, market development, and women's empowerment, Project Bloom aims to create a vibrant and sustainable bamboo industry that benefits local communities and the environment.



## 2. Digital Presence of NERRRC

The North Eastern Regional Research and Resource Centre (NERRRC) has established a robust digital presence to enhance its reach and impact. Through its website, social media channels, and online platforms, NERRRC connects with a diverse audience, disseminates information and fosters engagement with its initiatives. NERRRC actively engages with the public through various social media platforms, including Facebook, Twitter, Instagram, and LinkedIn.

## 3. Cultural Performances

### Tetseo Sisters Performance at Miranda House Organized by NERRRC

On April 6th, Miranda House hosted a captivating performance by the Tetseo Sisters, organized by NERRRC. Hailing from Kohima, Nagaland, the Tetseo Sisters showcased their rich cultural heritage through traditional Chokri songs. Their enchanting melodies and vibrant attire mesmerized the audience, comprising students and faculty from Delhi University.



The event exemplified NERRRC's efforts to increase cultural exposure by bringing Northeast India's musical traditions to a broader audience. The Tetseo Sisters, renowned for their performances at the Hornbill Festival and across India, highlighted the beauty of Naga culture, fostering appreciation and unity through music.

This performance not only celebrated cultural diversity but also underscored the role of music in promoting cross-cultural understanding. By showcasing the Tetseo Sisters' talent, Miranda House and NERRRC contributed to enhancing cultural dialogue and awareness among students and the community. Conferences and Ideation Sessions

## 4. Ideation Conclave 2

In its platinum Year Miranda House has committed itself to encouraging and establishing women led startups. It has initiated an incubation and innovation lab in its North East Regional Research and Resource Centre of Miranda House.



Ushering in its 75th year, which coincides with the year of G20 headed by India, Miranda House, NERRRC organised a brainstorming session on "Women @ Innovation and Entrepreneurship" with a special focus on North East India on May 02, 2023, from 3 pm onwards at the India International Centre, Max Muller Marg.

The esteemed panel featured Professor Bijayalaxmi Nanda, Principal, Miranda House, as the Chairperson with Dr. Kajal, Director, DPIIT, Ms. Mercy Epao, IAS, JS-SME, and Dr. Pratishta Pandey, Head, Department: R&D Infrastructure, Ministry of Science and Technology and Mr. Kavindra Kumar, Member, Steering Committee, Ministry of Communication as panellists.

Sharing her valuable insights Dr. Kajal extended guidance to the aspiring entrepreneurs of



Miranda House in their ventures. She emphasised the need to develop a startup friendly ecosystem and offered the required support to Miranda House. Ms. Mercy Epao explained about the ongoing schemes that provides support to the women entrepreneurs and the ways to reach out to these schemes converting their meaningful ideas into smart enterprises. Dr. Pratishta Pandey spoke about the ongoing schemes through which the budding entrepreneurs can gain edge about their innovative ideas. Mr. Kavindra Kumar shared his experience as young entrepreneur in India's start-up ecosystem.

The brainstorming session began with Miranda House Skill Hub and Project Bloom-a student led start up incubated by Miranda House for working on bamboo products. The initiative involves women from the local communities sharing their experiences of beginning a start-up at Miranda House. The session proved to be an innovative practice that enabled the twenty-five young women entrepreneurs from Miranda House to understand and take forward their business ideas.

The second session – Resonant Rhythms was a literature-poetry reading session in different languages of India. Noted Odia Poetess, Mrs. Rajalaxmi Pani read her poems on womanhood. Reciting her poems 'Ravana' and 'Ahilya', she spoke about different aspects of a woman's life

and the experience of being a woman. The poems were translated into English by Professor Bijayalaxmi Nanda. Students from Miranda House narrated poems in their mother tongues. The languages were primarily from the North-Eastern Region and included oral languages from region like Adi and Monpa. Ms. Rakhee Bakshee from Her World India, media outreach partner of NERRRC, Miranda House moderated the session and translated all the narrated poems in Hindi. This session was a beginning of a unique poetry startup promoting the values of multilingual, multidisciplinary approaches promoted by NEP 2020.

## 5. Start-up Conclave 2024

The North East Regional Research and Resource Centre, Miranda House, inaugurated its 1st Start-Up Conclave on May 7, 2024, in partnership with Careerwill. The event attracted students from Delhi University and other universities across India, with over 150 pitch entries. Out of these, 57 were selected, and finally, 25 pitch ideas were invited to present in person. Each entry featured at least one woman as a core member and a connection to Northeast India.

Ms. Veena Swaroop, Former Director of HR at Engineers India Ltd, served as the Chief Guest, accompanied by distinguished guests including Mr. Vaibhav Chaturvedi (Head of Talent, Nestle South Asia Region), Dr. Abhishek Tandon (CEO, Udhomodya Foundation), and Mr. Satyendra Tiwari (Vice President, Careerwill). The conclave commenced with a Welcome Address by Principal Professor Bijayalaxmi Nanda, followed by an inspiring speech from Ms. Swaroop, emphasizing the importance of such conclaves in encouraging women to pursue their entrepreneurial dreams.



The atmosphere was charged with excitement as students gathered to participate in this blend of entrepreneurial spirit, female representation, and sustainable development. The program aimed to foster an environment of incubation and entrepreneurship at the university level, encouraging women to engage in economic activities. The conclave included a workshop session where Mr. Satyendra Tiwari and Colonel Amardeep Singh, an Ed Tech Entrepreneur,

shared their experiences and approaches to sustaining entrepreneurial interests, providing students with valuable insights and a fresh perspective.

Following the workshop, start-ups from across India showcased their innovations to a panel of investors and industry experts. The panel included Ms. Deedhiti Saikia (Founder, The Eastern Diva), Ms. Tarunika Jain Aggarwal (Udhmodya Foundation, University of Delhi), Mr. Jay Dash (Director, Ashwini Group), Mr. Pawan Kumar (Co-Founder, Careerwill), and Mr. Satyendra Tiwari.

The second day continued with more pitch presentations, followed by a fireside chat where experts and participants exchanged wisdom and advice. A mentor and investor connect session featured interactions with Ms. Prathana Borah (Vice President Sustainability, Momentum India), Sonal Bali (CFO, Intello Labs), and Ms. Rakhee Bhakshee (Founder, Her World India).

The Conclave concluded with a Valedictory session. Prof. Ravinder Kaur (Executive Officer, Udhmodya Foundation) was the Chief Guest, joined by Mr. Pawan Kumar and Prof. Bijayalaxmi Nanda. Prof. Nanda announced the results of the pitching competition: first place was awarded to Mr. Srijan Sahi for his start-up initiative PicaPool, and second place to Shaheen from Miranda House for her start-up Millets Canteen.

## **6. Research Internships**

North East Regional Research and Resource Centre (NERRRC) offers a comprehensive internship program that provides students with hands-on research experience in various fields related to Northeast India. Each session we have 20 interns are selected from diverse academic backgrounds to work on various research projects related to climate, family structure in Northeast India, and financial literacy.

Interns at NERRRC work on a wide range of interdisciplinary projects, including those related to climate change impacts on the region's ecosystem, agriculture, and water resources. These projects use climate models and satellite imagery to analyze temperature trends, and other climate-related indicators. The findings from these projects help inform policymakers and the public on the potential consequences of climate change and the urgent need to reduce greenhouse gas emissions.



The internship program also focuses on social science projects, such as family structure in Northeast India and financial literacy. These projects use various research methods, including surveys, interviews, and focus groups, to study the cultural and socioeconomic factors that impact these issues. By understanding the social and economic barriers that affect access to clean energy and financial services, these projects aim to identify effective solutions that can promote sustainable development in the region.

The interns at NERRRC have the opportunity to work closely with experienced researchers, learn new research techniques and methods, and gain valuable research experience in their respective fields. They are also encouraged to participate in workshops, seminars, and conferences to further develop their knowledge and skills in clean energy and sustainable development.

Overall, the internship program is an excellent opportunity for students to gain hands-on research experience in various fields related to clean energy and sustainable development in Northeast India. The interns at NERRRC have contributed significantly to the institution's research output, and their work has helped inform policymakers and the public on the urgent need for sustainable development in the region. The internship program has been successful in achieving its goal of providing students with valuable research experience and preparing them for future careers.



## 7. Research Projects and Field Work

**Mapping Climate Change Dynamics through Ecological and Habitat Modelling in the Brahmaputra River Basin (BRB): Impact of Invasive Species in Kaziranga UNESCO Natural Heritage Site and the Manas Biosphere Reserve.**

### Details of the Investigator

Principal Investigator: Dr Ankita Medhi  
Co-Principal Investigator: Dr Somdutta Sinha Roy  
Prof Bashabi Gupta

### Project Abstract

Anthropogenic pressures on earth systems predict a global increase in biological invasions and extreme climatic events. The concomitant change, known in common parlance as Climate Change and Variation, has diverse environmental, economic and societal impacts. Biological invasions are a threat to food security, livelihoods, and species diversity. Natural ecosystems, such as those in the Brahmaputra River Basin region, are particularly vulnerable to these invasions. For efficient and effective responses to the rapid changes in the environment, reliable and resilient ecological and habitat suitability modelling methods need to be created. The Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES) advocates thematic assessment of invasive alien species movements and impacts in different ecosystems. This is interdisciplinary research that aims to fill the lacuna that exists in the research of climate variability and the impacts of biological invasions on natural ecosystems. This study aims to create an effective ecological and habitat suitability modelling framework

using multi-temporal Earth Observation (EO) images, including Sentinel-1A & 1B Synthetic Aperture Radar (SAR) images and optical WorldView-3 images along with Oral Histories, for analysing the changes in the environment. This study aims to bring out the impact of climate change-driven biological invasions on the ecology, economy and biodiversity of the Brahmaputra River Basin in Assam using habitat suitability modelling.

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|-------------------|--|
| Literature Review | Literature review for habitat mapping, habitat suitability models, and climate change impacts on habitat, floristic studies have been done so far for in-depth understanding of the interrelationship.   |
| Fieldwork:        | First phase of fieldwork was conducted in Manas National Park and Kaziranga National Park in January 2024 to collect primary data. Plant and soil samples were collected from all three ranges i.e. Bansbari, Panbari and Bhuyan Para in Manas National Park. Community studies were done using Quadrat Sampling Techniques. GPS data were collected to identify different land cover types found in the ranges. The                 |
| Future Work:      | <p>Literature Review</p> <p>Floristic Mapping and comparison based on data collected from field</p> <p>Land use/cover change mapping, NDVI, NDWI and MNDWI maps of the national parks from satellite imageries (40 years span period)</p> <p>Creation of maps with the spread of Alien Invasive Species in Manas National Park and Kaziranga National Park.</p> <p>Creation of model to predict spread of Alien Invasive Species</p> |
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Figure 1: Location of Manas National Park

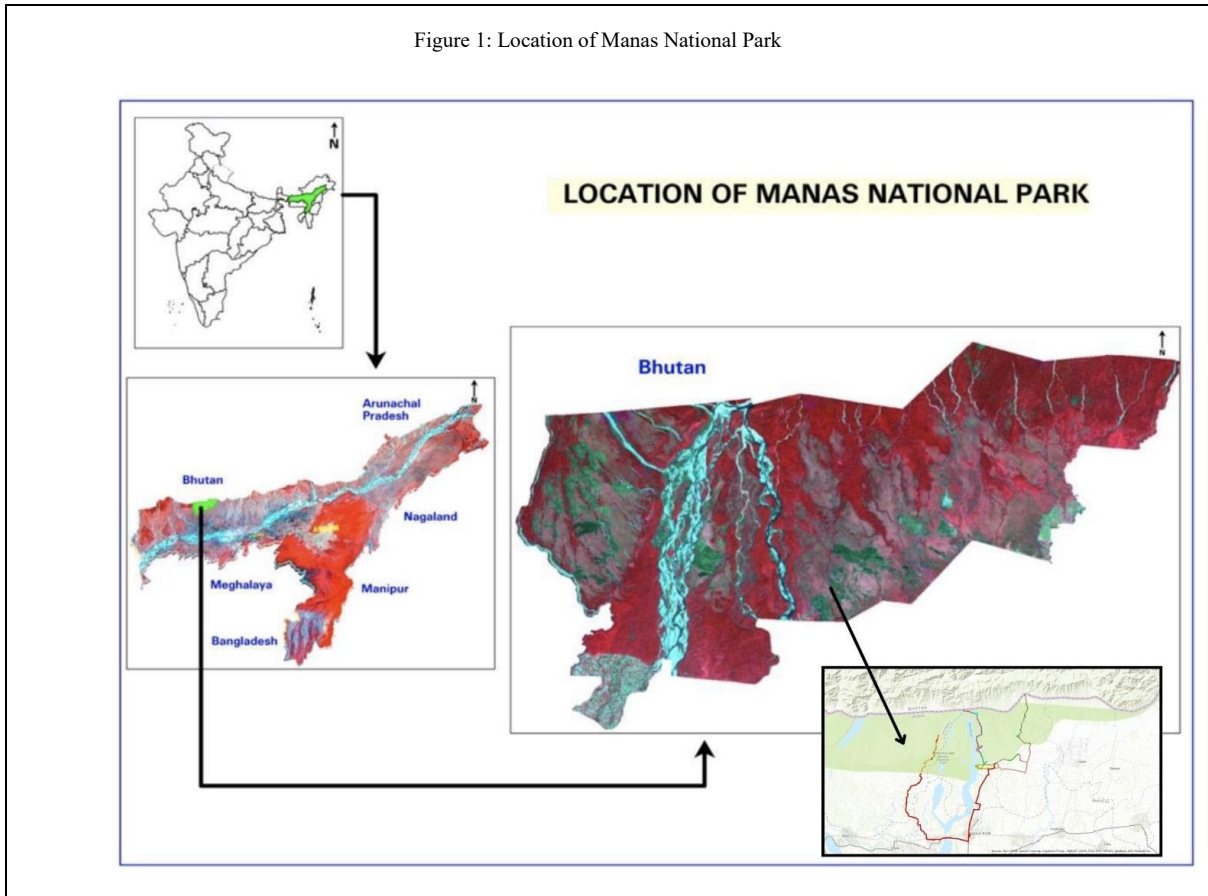


Figure 2: Fieldwork GPS locations collected in Panbari, Bansbari and Bhuyanpara range in Manas National Park

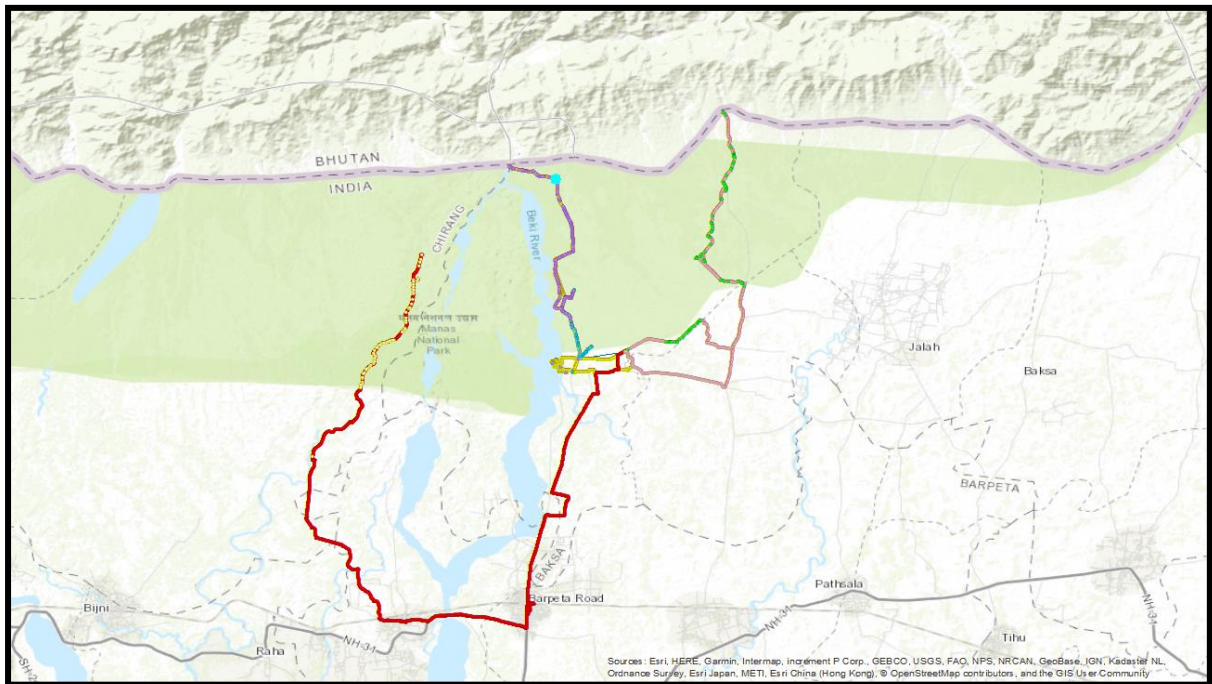






Figure: 3(a) Grassland in Manas National Park



3(b) *Chromolaena Odorata* in Manas National Park



3(c) *Mikania Micrantha* in Manas National Park