



Review Article

Entrepreneurial Ecosystem in Higher Education Institutions of North-East India: Challenges and Opportunities

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Abstract: Higher Educational Institutions (HEIs) are the key enablers of entrepreneurial ecosystems and the drivers of economic development. They are responsible for building an entrepreneurial mindset among the young generation. In this paper, the North Eastern region of India is highlighted because, despite significant potential, this region is yet to be explored in the research world of entrepreneurial ecosystems. A comprehensive understanding of region-specific dynamics of the ecosystem is necessary to add to the knowledge world. The main purpose is to conduct a systematic synthesis of fragmented literature that includes scholarly articles, institutional reports, and official government documents. The application of thematic analysis enhances the findings of the key patterns and concepts. After analyzing, it was found that although national policies depict a macro-level framework, regional implantation should be modified as per the needs and challenges of the region at micro-level. Therefore, this paper highlighted the critical prospects of North-East Indian entrepreneurial landscape helpful for policymakers, educational institutions and future researchers.

Keywords: Entrepreneurial Ecosystem, HEIs, policy, incubation, innovation, North-East India, NEP 2020

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1. INTRODUCTION

In addition to entrepreneurs, an ecosystem of institutions, networks, policies, and culture contributes to fostering growth and innovation. In the global context, these ecosystems have grown significantly to drive regional economies and increase resilience and creativity. However, during the pandemic, this growth was disrupted, and the Global Entrepreneurship Monitor (GEM) report (2023) reported a lower rate of entrepreneurial activity in 47 nations. According to Sahasranamam et al. (2022), many countries have been actively working to revive entrepreneurship to pre-pandemic levels. Higher Education Institutions (HEIs) are the key enablers within this landscape. Choudhary and Kumar (2021) mention that HEIs play a vital role in developing entrepreneurial mindsets, providing institutional support, and strengthening the vast ecosystem. "Entrepreneurial university" is a term that goes beyond the traditional method of teaching and research. It also encompasses functions of social and economic development (Etzkowitz, 2014). This transformation combines business incubation, research commercialization, and industry partnerships with academia (Klein & Pereira, 2021).

In India, multiple initiatives such as Startup India (2016), Atal Innovation Mission (AIM), and NEP 2020 have focused on the crucial role of HEIs in fostering entrepreneurship. The AIM under NITI Aayog is a flagship initiative of the Government of India (GOI) that supports Atal Incubation Centres (AICs) for entrepreneurs, Atal Tinkering labs for school level by opening innovation hubs, providing funds, and monitoring and building infrastructure for startups across sectors ("Atal Innovation Mission", n.d.). These initiatives show that public policies are now beginning to see educational institutions as active partners in developing a stronger and more entrepreneurial economy, including places of learning.

Although such initiatives and schemes are being introduced at the national level, the north-eastern region remains an underdog in the research world of entrepreneurial ecosystems. HEIs in this region, such as IIT Guwahati, IIM Shillong, Assam Engineering College, and a few such institutions, have built an entrepreneurial culture by setting up incubation centers, entrepreneurship development cells, incubation programs, and encouraging student startups. Yet, these efforts require a comprehensive probe to understand and see more closely how well the HEIs actually work towards fostering entrepreneurship and the challenges and opportunities faced by the educational institutions of the North-Eastern region.

The **research gap for this study** can be divided into two parts:

- a) *Methodological gap*: The literature available in this field is quite fragmented. This indicates a gap in a synthesized and cohesive study. This study would therefore fill the void by giving a unified and analytical perspective, aligning national policies to region-specific implementation.

- b) *Regional gap*: Although national policies and schemes are commonly documented, region-specific implementation and grassroots effectiveness in the culturally and geographically unique area have yet to be studied in a comprehensive probe.

Hence, the **objective of this paper** is to critically evaluate, using a narrative approach of review, the flexibility and effectiveness of the national startup policies, such as Startup India, the Atal Innovation Mission, and NEP 2020. Along with the national, the region-specific frameworks will also be evaluated in boosting a sustainable entrepreneurial ecosystem within the HEIs of North-East (NE) India. The fragmented literature is synthesized, and crucial challenges and opportunities are analyzed to highlight the significant gap between macro and micro-level policy design and implementation.

2. METHODOLOGY

In this study, a narrative style review technique is used as the objective is to analyze and synthesize various forms of literature (Green et al., 2006). The systematic review, on the one hand, relies on a huge dataset of literature and predefined inclusion criteria. Whereas the narrative approach focuses on a broader conceptual mapping and critical interpretation of existing literature (Ferrari, 2015). Hence, this study brings the conceptual clarity of the policy framework by opting for a narrative review technique. For this, certain inclusion and exclusion criteria were considered.

DEFINING INCLUSION AND EXCLUSION CRITERIA

Inclusion criteria:

- **Source type**: In this review study, a few scholarly articles and certain official websites were considered. It includes peer-reviewed research articles from academic databases, public notices, and documents from government agencies such as NITI Aayog, AIM, Ministry of Development of North Eastern Region (DoNER), and AICTE. Additionally, institutional reports of a few HEIs were also reviewed to understand the role of HEIs in boosting entrepreneurial culture.
- **Publication Date**: For this study, research articles from the last 10 years (2014 to 2025) were only considered for the review. This was done to focus on the contemporary trends and implications of policies.
- **Databases**: The academic database primarily included Google Scholar, which supplemented different educational and governmental websites for accessing public reports and documents.
- **Keywords**: The prime focus of this paper was “entrepreneurship”, “innovation”, “policy”, “incubation”, and “higher education”. North-East India and related terms were also

considered to ensure a relevant collection of sources for the review.

Exclusion criteria:

Resources apart from the specified 10-year timeframe were not considered solely to target the recent trends. Further, documents irrelevant to the core themes of HEIs, entrepreneurship, or the specific content of NE India were not considered. Non-scholarly articles or unreliable sources (eg, personal blogs and websites) were excluded.

Identification of Themes

A thematic analysis of the selected resources was conducted to provide a systematic and flexible approach to organizing and extracting meaning from the existing resources (Oberoi, 2025).

- A thorough reading of the selected literature was the initial step in identifying the themes (Hecker & Kalpokas, n.d.). This led to identifying recurring concepts, findings, and research debates.
- The resources were subjected to a coding process involving inductive and deductive approaches (Intellect us Statistics, 2024).

Inductive coding: Certain codes were generated from the literature to identify key concepts and repeating words like “lack of awareness”, “infrastructural challenges”, “cross-border opportunities”, and “funding gaps”. These phrases were primarily taken from the empirical studies.

Deductive coding: Using a pre-existing theoretical model (the Triple Helix model) was considered for the deductive approach. This model depicts the relationship between the university, industry, and government. This model can be used to segregate data based on the synergy between these three key components in the ecosystem.

- The similar concepts or themes were then grouped to form broader themes. The prime themes of this review were Policy framework, Role of HEIs, and Challenges and Opportunities. For example, codes related to “poor transportation”, “lack of power”, and “connectivity issues” were clubbed in the broader theme of “Infrastructural challenges” (Hijam & Meetei, 2025).
- Finally, the findings were synthesized across the different themes. The analysis depicted the linkages between the challenges and opportunities rather than only listing them. The fragmented regional literature was more than just a theme that explained the importance of a narrative approach to get a clear picture of this topic.

Using this methodology, the next sections of this paper are documented. Starting with the

critical evaluation of the national and regional policies.

3. POLICY FRAMEWORK FOR ENTREPRENEURSHIP IN INDIA

a) National Initiatives for Entrepreneurship

The GOI has taken several strategic initiatives to inculcate entrepreneurship into the higher education sector. Below are a few of such initiatives: -

i) *Startup India Initiative (2016):*

This initiative was launched by the Department of Promotion of Industry and Internal Trade (DPIIT). The Startup India focuses on boosting the startup ecosystem by easing regulations, providing funds, and linking the industry with academia. At the national level, the policy has shown tremendous growth with registered startups from 452 in 2016 to 34,779 in 2023. In Assam, the number grew to 362 by 2023 with a compound annual growth rate (CAGR) of 69.5% (Hijam & Meetei, 2025). This data shows the positive impact of the policies. Further, the Small Industries Development Bank of India (SIDBI) manages a fund of Rs.10,000 crores, a corpus for startups. This also includes tax exemption and collateral-free credit guarantees. Under this initiative, there are 68 recognized AICs, as of 2024, highlighting the collaboration of industry with academia (Nagar & Aijaz Ahmad, 2024).

However, despite the positive impact, there are significant “funding constraints and scarcity of support infrastructure” in the NE region. The local institutions are hesitant to lend funds due to a lack of collateral, creating a divergence between the intention of policy and the regional reality (Baro, 2024).

ii) *Atal Innovation Mission (AIM) under NITI Aayog:*

As mentioned above, this mission was launched in 2016 and is a flagship programme under the GOI. Here, innovation and entrepreneurship have been made mandatory at the national level. Several programs have been initiated under this scheme:

- *Atal Tinkering Labs (ATLs)* - These are labs for innovation and creativity at the school level.
- *Atal Incubation Centres (AICs)*- These are the business incubators setup at educational institutions and organizations by this mission. There are over 72 functional units across the country, more than 3500 startups are incubated, and more than 32000 jobs have been generated, among which more than 1000 startups are women-led.
- *Atal Community Innovation Centers (ACICs)* - These are specially built for under served or unserved regions of the country. This innovative model by AIM has 14 ACICs in the country covering aspirational and hilly terrains.
- *Atal New India Challenges (ANICs)* and *Mentor of Change* initiative under AIM support innovation in products and services and offer mentorship to the innovators in

different sectors. ("Atal Innovation Mission", n.d.).

These flagship initiatives under AIM together strengthen the infrastructural support for entrepreneurship throughout the educational sector and across the country.

However, despite the laudable success of this mission, in the regional view, there are "policy and institutional loopholes" along with the "awareness gap". This depicts that no matter the inclusivity of the framework, its grassroots impact is still in an infancy stage. There is a need to set up further ATLs in the NE region, as per the new guidelines in AIM 2.0, which showcase that the mission is still in progress in this part of India.

iii) National Innovation and Startup Policy (NISP):

NISP was launched in 2019 for faculty and students of HEIs. The prime concern was to encourage innovations and startups among students and faculty. The objective of this initiative is to enable the educational institutions to nurture an innovative entrepreneurial ecosystem within their premises. The first phase of the NISP program was held during August-September 2020. More than 1000 HEIs participated in this initiative across 31 states/UTs ("National Innovation and Startup Policy 2019 (NISP) Implementation", n.d.)

iv) National Education Policy (NEP 2020):

The NEP 2020 vision of multidisciplinary and holistic education that would include innovation and entrepreneurship. Institution Innovation Councils (IICs) have been established, and IDEA labs by the All India Council for Technical Education (AICTE) for application-based learning and hands-on training have been developed in support of NEP 2020 (Prajapati, 2022). Further, there is integration of vocational courses with the regular academic programs to boost entrepreneurial culture. The National Research Foundation (NRF) has also been created to assimilate research and innovation into academia (Kandakatla et al., 2021).

However, there is a nationwide implementation challenge to give proper training to teachers, and the issue of the digital divide. The NE region has a rugged terrain, and with limited infrastructure, the implementation of this policy becomes more challenging. Therefore, without addressing these fundamental challenges, the potential of NEP 2020 to boost entrepreneurship cannot be obtained in this region.

b) Policy Framework for North-East India

The policy framework in the north-eastern region of India in relation to entrepreneurship is a combination of state startup policies, central ministries' regional protocols, and HEIs linked to incubation. The Assam Startup Policy, 2017, has designed a framework to recognize, incentivize, and incubate young entrepreneurs through the Assam Startup-The NEST ("ASSAM STARTUP POLICY", 2017). This is a state-owned incubation hub that was co-partnered by IIM Calcutta Innovation Park, and currently it is managed by EY (Ernst & Young). It covers

the entire entrepreneurial ecosystem from the mentor network to the incubator and the corporate network ("Startup Assam", n.d.). It is connected to various entrepreneurship cells of the institutions and spoke incubators within the campuses of the educational institutions. This structure positions HEIs as local centers where new ventures are nurtured and linked to the state-level platform (Department of Industries, 2025).

At the central level, the DoNER and the North-Eastern Council (NEC) have funded initiatives to build skills, prepare students for entrepreneurship, and support incubation, adding to the efforts made via the existing state policies and HEIs. In a recent report of DoNER, it highlighted the support it is offering for creativity, skill-building, and establishing small-scale enterprises in the North-Eastern region, which aligns with the state startup policies and HEI activities towards entrepreneurship (Ministry of Development of North-East Region, 2024).

In NE India, there are various institutional incubators and entrepreneurial centres that are tied to the central scheme such as AIM, ACIC, NISP, or NEP 2020 and moulded in to regional capability. Below are a few of the well-known HEIs in the NE region that have contributed to this field:

- **IIT Guwahati:** The Indian Institute of Technology (IIT) Guwahati, Assam, has a vast ecosystem for entrepreneurship. They have a Technology Incubation Centre (TIC) for technological startups, and they provide mentorship, funding, and dedicated space to build on innovative ideas (IITG-TIC, n.d.). Further, IITG has another centre named "BioNEST IITG" with the help of the Biotechnology Industry Research Assistance Council (BIRAC). This centre aims to foster entrepreneurial culture and innovations in biotechnology, healthcare, agritech, and renewable energy sectors (2022).
- **IIM Shillong:** The sole IIM in the entire NE region has a different ecosystem compared to other institutions in the region. It operates the IIM Shillong Foundation for Incubation and Enterprises (IIMSFIE), a dedicated entity for supporting and nurturing early-stage ventures across NE, but not exclusively (Shillong, n.d.). From co-working spaces to financial assistance, they offer a wide range of support to young entrepreneurs. Further, STEM-based projects are also undertaken and assisted in the IIMSFIE setting the example that management institutes can lead and guide ventures in the region (Shillong, 2024a).
- **Assam Agricultural University (AAU):** AAU, Jorhat, has a collaboration with AIM under NITI Aayog and RKVY-RAFTAAR program to setup NEATEHUB, an agritech business incubator in 2018. NEATEHUB offers two two-stage programs: Idea stage and Startup Stage for agri-based businesses. This incubation centre is considered the center of excellence for the agri-business sector for the entire north-eastern region

(AAU, n.d.).

- **Assam Engineering College (AEC):** The undergraduate students of AEC, Guwahati, have setup an Entrepreneurship Development cell (EDC) to conduct awareness campaigns and initiate entrepreneurial activities like participating in business summits and attending workshops. (AEC, 2022). Two startups named Paisewallah and Frint by the students of AEC have been incubated with the support of the Assam Startup-the NEST. They have also conducted an awareness program in AEC to motivate and support the dreams of aspirational student entrepreneurs (Startup, 2023).

According to Chatterjee et al. (2022), the north-east region's entrepreneurial ecosystem, especially in Tripura, highlights the emerging challenges and opportunities for setting up a new venture. There is a financial gap, an infrastructure gap, and an awareness gap. However, the HEIs are trying to incorporate multiple initiatives to build skills and align with the national policies of entrepreneurship. In another study by Kumar and Shobana (2023), they discussed the challenges and highlighted the opportunities to start a venture in the hilly terrains and different geographical locations.

Therefore, the Assam Startup Policy (using a central hub and spoke model), along with the support of DoNER and NEC from the central level, if connected to the HEI-based incubation, then the North-East entrepreneurial ecosystem can be made functional and effective to foster entrepreneurship in the region. Summarizing the above policies, a table is drawn to highlight the important analysis:

Table 1: Summarization of the policy framework

Policy	Stated objectives	Implementation in NE India	Observed impact	Identified Challenges
Startup India	To foster an entrepreneurial ecosystem by easing regulations, providing tax benefits, and providing funds.	The Assam Startup Policy was initiated based on this mission, and the NEST incubation hub was established. From 2016 to 2023, Assam saw a 69.5% CAGR in new startups.	With a rise in registered startups and an increase in awareness in urban areas, the ecosystem is developing	Continued funding constraint due to the absence of collateral and less private sector support, and improper physical infrastructure
AIM	To boost innovation and entrepreneurship by focusing on	ACICs and ATLs are being set up; IITG and IIM Shillong have incubation	Nationally, over 3500 startups are incubated,	There is a lack of awareness and loopholes in the policy and

Policy	Stated objectives	Implementation in NE India	Observed impact	Identified Challenges
	inclusivity and catering to underserved areas.	centers linked to these central schemes.	mostly women-led ventures.	institutions, a barrier to the policy's potential.
NEP 2020	To reform the education system by adding innovation, multidisciplinary, and entrepreneurship.	IICs and IDEA labs are set up, and this policy focuses on experiential learning.	A change in the pedagogical curriculum encourages a more creative mindset among students	Digital divide and better teacher training are constraints in the nation. Additionally, there are geographical and infrastructural constraints in the NE region.
Assam Startup Policy	To facilitate a minimum of 1000 new startups, a fund of USD250 million, and create 1 lakh jobs in five years	The NEST Assam Startup was established using a hub-spoke model. IIM Calcutta Innovation Park and EY were partner institutions.	Assam was the "leader" in the 2022 State's startup ranking. A direct contribution of the policy led to the growth of startups	In certain areas like "incubation support", "awareness", and "seed funding", performance is below the national average, indicating scope for improvement.

A small case study on "Assure Biovention", an incubatee in AAU. This startup has significantly incorporated the Triple Helix model for successful policy implementation (Team TICE, 2025). Firstly, the startup was university-incubated by AAU's innovation and entrepreneurship policy. For this, AAU has become the first state agricultural university in the country. Secondly, Assure Biovention has been funded by the Department of Biotechnology (DBT), GOI, to launch their products. Thirdly, their initiative of bio-input products has been commercialized, making a research idea into a market-ready product. This highlights the industry connectivity.

This success story of Assure Biovention has demonstrated that the three helices: HEIs, industry, and government, can converge or work in synergy to produce tangible and successful results. The next section indicates the role of HEIs, incubation centers, and government-industry linkage.

4. ENTREPRENEURIAL ECOSYSTEM IN NORTH-EAST INDIA

4.1 Role of Higher Educational Institutions (HEIs)

North-east India's HEIs have started to play a crucial role in building an entrepreneurial environment on their premises by offering knowledgeable resources, mentorship, and reliable support to infant ventures. As mentioned above, certain HEIs like IIT Guwahati and IIM Shillong have setup dedicated incubation centres and offices for technology transfer that link industry with academia, and this makes the HEIs play as the training ground for student entrepreneurs. Also, for the local startups, these facilities can be used to get access to technical expertise and facilitate prototyping. For instance, IIT Guwahati has the TIC and the BioNEST incubation centers where technology startups are hosted, and IITG organizes an environment for mentors and investors to connect with the founders of those startups (incubatees) (IITG-TIC, n.d.). In Tezpur University, there is a Centre for Innovation, Incubation and Entrepreneurship (CIIE) (University, n.d.) and Centre for University-Industry Interface (CUII) (Ahmed, 2017) that hosts the platform for connecting the students and faculty with industry experts. Similarly, other HEIs of the North-east try to incorporate certain facilities for the student entrepreneurs, fostering an entrepreneurial ecosystem in the region. The central policies, such as AIM and NISP, are being tried to incorporate within the HEIs along with the technical and managerial expertise.

Some HEIs have initiated certain programs where there is collaboration or linking of skills-to-enterprise, and these are long-duration programs for capacity-building. In IIM Shillong, there is a STEM (Skill to Enterprise Model) program under the IIMSFIE (Shillong, n.d.). It is an 18-month-long program where SIDBI offers support for training and incubating students and nascent entrepreneurs, specifically targeting the north-eastern region. (Shillong, 2024b). Such initiatives depict that HEIs are now shifting from their traditional role of academic delivery to promoting new ventures by adapting to local requirements.

4.2 Incubation Center and Innovation Hubs

In the north-eastern region, it has been observed that there is a network of innovation hubs and incubation centres at the state and institutional levels. In AAU, NEATEHUB is a well-known agri-technology incubation center that focuses on rural innovations and agri-based value chains. Different programs under NEATEHUB and impact reports have mentioned their active work towards agri-tech organizations within the region (AAU, n.d.). On the other hand, the incubation and innovation hubs of IITG offer laboratory space, industry mentorship, and prototyping support for multiple technological startups (IITG-TIC, n.d.). There is a research park as well that hosts meetings with industry experts. In Assam, the Startup NEST operates as a hub-and-spoke model connecting with the HEIs' entrepreneurship cells or clubs and

spoke incubators to link innovations of premises with the market and offer government support ("Startup Assam", n.d.). Therefore, it can be understood that these hubs and incubation centres support investment, provide expertise on technical grounds, and mentor the young entrepreneurs to uplift their ventures and normalize the road from ideation to commercialization.

These incubators also focus on capacity-building and skill development by organizing different regional programs and selecting potential entrepreneurs.

4.3 Industry and Government linkage

For a sustainable entrepreneurial ecosystem, a triple helix model of university-industry-government should be maintained (Leydesdorff, 2012). In the north-eastern region, this collaboration functions at different scales:

- MOUs and research collaboration among the HEIs and industry. In IITG, there is technology transfer from incubates to local industries (Chennai, 2025; Guwahati, 2023).
- The Nest under Assam Startup enhances district-level innovations and collaborates with the market and investors for seed funding. ("Startup Assam", n.d.).
- Under DoNER and NEC, they offer funding to skill-building programs and cluster investors for collaboration.

From different sources, such as press releases and newspaper articles of the HEIs, it has been highlighted that there is an increase in the number of MoUs, startup exhibitions, and project collaborations with the HEIs, incubation centers, and industry. All these initiatives contribute to an active, sustaining entrepreneurial ecosystem.

5. CHALLENGES IN THE ECOSYSTEM OF NE INDIA

Despite the diverse initiatives from different sectors (HEIs, government, incubation centres), there is still a lack of a full-fledged entrepreneurial environment. Due to the geographic terrain and certain other factors, there are challenges in the ecosystem.

- *Infrastructural Challenges:* Entrepreneurship in NE, although it is progressing, faces certain barriers. As discussed by Das (2023) in his study, there is inadequate infrastructure due to the hilly terrain. There is a lack of power, proper transportation facilities, and communication. In another study by Gilletal. (2014) highlighted the multiple challenges faced by rural entrepreneurs. There are issues with connectivity, scarce access to finance (although financial inclusion is in progress), and access to the market is poor.
- *Capacity and Skill challenges:* Kumarand Shobana (2023) has highlighted in their paper the different barriers to entrepreneurial education. There is a lack of

awareness and mindset, which indirectly affects skill development. If the mindset of an individual is not to change, then all the schemes and initiatives will not reap better results. Also, there are instances where students face limitations in receiving practical exposure, as there are fewer industries in the region. Further, it has been observed that most of the incubatees are afraid to move out into the market because of their inability to face the volatile market.

- *Policy and Institutional Loopholes:* Despite the numerous policies and government interventions for fostering an entrepreneurial ecosystem, as per reports, the regional rankings are quite poor. These are due to a lack of timely disbursement of funding, poor infrastructure and cooperation, and a lag in awareness. Compared to urban, rural entrepreneurship is facing humongous challenges. Also, the societal pressure forces aspiring entrepreneurs to become job seekers rather than job creators because of these multiple challenges.

6. OPPORTUNITIES AND FUTURE DIRECTIONS

However, apart from all the challenges faced by this region, there are significant opportunities that support a sustainable entrepreneurial venture. Let's discuss the opportunities in the North-East region in this part:

- In the NE region, due to its diverse terrain, multiple opportunities can be sustained. From agriculture to tourism, NE has a huge potential for entrepreneurship. In the agricultural sector, the AAU's NEATEHUB is incubating multiple agripreneurs working in different sectors from food plantations to food processing, poultry farming, dairy farming, etc. (AAU, n.d.). The mighty Brahmaputra and its tributaries flow through the entire North-Eastern region, providing huge potential in agriculture, fishing, and tourism. Also, NE is known for its diverse culture due to the huge number of tribes residing in this region. Thus, there are plenty of opportunities to cater to entrepreneurial activities along with the support from the HEIs, incubation hubs, and the government. With digital inclusion, accessibility and visibility have increased on a large scale.
- NE India shares international borders with Bangladesh, Bhutan, Myanmar, and China. This gives the possibility to opt for a cross-border transaction. With the GOI's Act East policy (2014), connectivity has improved towards the ASEAN markets. The issues with logistics, market accessibility, and export difficulty have been solved. With the enhancement of digital platforms, the challenges of difficult terrain and infrastructure have been resolved.

The HEIs are required to understand these potential opportunities so that they can offer an

environment for the student entrepreneurs to venture into their businesses without any fear. A certain future roadmap can be:

- (i) Including entrepreneurship as a curriculum in the academic setting, offering both theoretical and practical insights.
- (ii) Collaborations with industries across the nation through co-partner projects, internships, and sector-specific support in incubating.
- (iii) Embedding NISP and NEP 2020 into HEI's pedagogy to bring in new talents and inculcate an innovative and creative mindset.
- (iv) Link to angel investors and venture capitalists, and create a stronger alumni network to fill the funding gap.

Thus, from the existing literature, it is evident that with challenges come opportunities, and to grab the opportunities properly is what would form a true ecosystem.

6. DISCUSSION

The entrepreneurial ecosystem of NE India, although it is in its infancy stage, has a huge potential to cater to the global markets and improve the economy of this region. But for that, the grassroots level should be strong. As per scholarly articles, higher educational institutions are considered the central hub of innovation and research. The triple helix model of Leydesdorff (2012) highlights the relation between the universities, government, and industry to boost entrepreneurship. The region showcases early signs of this model, like the HEIs, such as IIT Guwahati and IIM Shillong, which have a larger entrepreneurial ecosystem compared to other institutions in the region. They provide knowledge and incubation spaces, and further, the Assam State government has initiated the NEST platform as a facilitator, and industries in the region are slowly nosediving into the ecosystem.

However, unlike mature ecosystems in foreign countries like Europe or the USA, entrepreneurship in this region is at a nascent stage. Also, when compared with other states of India like Bangalore, Delhi, and Mumbai, the ecosystem of the NE region is new and very small. Although it is in its infancy, the ecosystem has a lot of opportunities that it can cater to, and it would lead to tremendous results. Despite having a low corporate scope and crunched venture funds, the NE region has significant potential due to its rich biodiversity, diverse cultural background, and cross-border benefits. Therefore, this study tried to highlight both the pros and cons of the regional entrepreneurial ecosystem of NE India, and this gives a picture of the diverse scope of opportunities in different sectors like tourism, agriculture, and digital inclusion.

This shows that although the policies are framed to align with the national innovation framework, their proper implementation will rely only on how they relate to the local conditions

or whether they are adaptable or not. This would ensure that local requirements or capabilities are not ignored by the universal approach.

7. CONCLUSION

This review paper tried to highlight the entrepreneurial ecosystem of the HEIs in NE India. Considering educational institutions like IIT Guwahati, IIM Shillong, and a few colleges of Assam. The primary focus was on the policy frameworks of India and the North-East, especially Assam. Incubation hubs and the linkage between academia and industry were also focused on. There view also tried to capture the challenges faced by the HEIs, although they play a central part in the ecosystem. As Chatterjee et al. (2022) discussed, rural entrepreneurs are facing challenges in NE India, specifically in Tripura. Infrastructural challenges, limited funding, and knowledge gaps act as barriers in the entrepreneurial ecosystem.

8. LIMITATIONS OF THE STUDY

Although this study critically evaluates the existing startup policies both at the national and regional levels, the study has certain limitations:

- It is a narrative study of institutional documents, government reports, and scholarly articles, not a systematic analysis. The narrative approach comes with a degree of subjectivity and selection bias (although it is better for fragmented literature), a systematic review would mitigate the same by its predefined inclusion criteria and exhaustive search.
- The review is limited to a defined time frame (2014 to 2025), and only well-known HEIs were considered. Thus, findings may not be fully generalized to all the HEIs or to a different time frame apart from the review's scope.
- An empirical study is necessary to understand the ground reality instead of focusing only on existing paperwork.
- This study mainly focused on Assam's startup policy. Other states' policies were not considered.

Thus, this gives the prospects for future research. Comparative studies of different policies are required to define the pros and cons and dimensions of the entrepreneurial ecosystem in the HEIs of North-East India. Empirical studies and applying both qualitative and quantitative approaches can help describe the implementation strategies of the startup policies.

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