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Enhancing SDG-4 Outcomes through Vocational Education in Sikkim

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Abstract: The situation in the Indian state of Sikkim illustrates the changes in the practices and policies of vocational and technical education due to the fourth sustainable development goal (SDG4) which focuses on education in all its forms and dimensions. Through the utilization of secondary data, government documentation, and regional reports from NITI Aayog, this research aims to explore the influence of vocational policies and the NEP 2020 on the evolving education landscape of Sikkim. This research attempts to develop a hypothesis which requires that investments into skill development at different stages in the education paradigm increases the qualitative and quantitative standards of employment, thus shifting the norm from traditional to self-employment. This research targets the transformation in Sikkim's institutions, its youth, and its governance in pursuit of fulfilling SDG 4 through education and skill training. Preliminary data illustrates the use of NSQF modules and 'bagless days' that are integrated into primary education, livelihood schools, and skill-based work exposure, which are aimed at raising the certification, employment and entrepreneurship levels in NEP 2020, PMKVY, Atmanirbhar Bharat.

Keywords: Sikkim Vocational Education, SDG-4, NEP 2020, Sikkim, Skill Development.

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Introduction

The drive to attain comprehensive and equitable quality education is a key component of the UN Sustainable Development Goal 4 (SDG-4), and the goals' foresight mandate that every nation work towards offering learning opportunities throughout a person's life (English and Carlsen, 2019). The foundation of this dream would be the incorporation of skill-based and vocational education into the educational frameworks. From an Indian perspective, this vision is now realised through the National Education Policy 2020 (NEP 2020), which seeks to give 50% of students access to vocational education by 2025. The document emphasises the necessity of a multidisciplinary, adaptable, and holistic blended system that fosters the growth of practical skills and competencies. In light of this, Sikkim, a tiny state in the Himalayas known for its creative and environmentally conscious policies, is a leading place to research the incorporation of vocational education into the formal educational system (Singh & Kumar, 2016).

These are linked to India's problems with increasing youth unemployment, increasing urban migration, and a mismatch between the skills and demands of the labour market. Sikkim's response to this issue, which aligns vocational education with the goals of SDG-4 and NEP 2020, is especially noteworthy and merits further investigation.

To integrate vocational training into the curriculum of the state's schools and universities, the state has implemented particular policy changes (Prasad & Choubey, 2025). The state has also seen curriculum changes, affiliation with pertinent training organisations, and conformity to national policies like PMKVY and Atmanirbhar Bharat Abhiyan. These initiatives not only improve youth educational opportunities but also act as a springboard for encouraging self-employment and entrepreneurial endeavours in an area with a dearth of job openings (Mishra, 2024). The literature currently in publication appears to be lacking in attention to the state-level implementation of vocational education in India's hill states in relation to development initiatives such as the Sustainable Development Goals. The local dynamics and institutional arrangements on the socio-economic conditions of the region, which are essential components of skill development policies, are often overlooked in national studies because they tend to take a more macro-focused approach.

Examining Sikkim's skill and vocational education and how it supports SDG-4 targets is the gap this study aims to fill. This entails evaluating Sikkim's position in relation to the other Indian Himalayan states, as well as examining the institutional architecture, level of NEP 2020 implementation, active youth engagement, and employment outcomes.

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Methodology

In light of SDG-4, the current study looks at how vocational and skill education affects young people's employability and educational attainment in Sikkim, India. Reputable information was gathered from a number of government sources, including the State Institute of Cardiac Building, Sikkim (SICB) reports, the Ministry of Education's NEP 2020, the Aayog's Summary Report on the Indian Himalayan Region (2018), and MSDE Dashboards. In order to measure things like institutional infrastructure and policy funnelling outcome indicators to interstate and intrastate comparisons, the investigations analyse cross-sectional data from six thematic areas. The information was arranged so that it could be utilised to display pertinent indicators and results in an interpretable framework. Sociological data was acquired by looking at the state's policy documents and other implementing materials along with the pertinent qualitative review.

Results

Information about the state's institutional framework, policy implementation, sectoral performance, and Sikkim's unique advantages with regard to skill development and SDG-4 are presented in this section based on reports from the federal and state governments.

Institutional Landscape of Skill Development in Sikkim

The results show that Sikkim has developed a strong system of skill education led by the SICB, which oversees IT, retail, hospitality, and healthcare training. More than 13,000 youth have received training through more than 35 livelihood schools and the selective implementation of PMKVY schemes; 6,700 of them were placed. Students can advance horizontally through the infusion of ITIs and the recently established Sikkim Skill University, and sector councils help to adapt the curriculum to local needs. Intentionally decentralising the demand-responsive skill education system is a significant shift for the ecosystem (Table 1).

Table 1: Core Institutional Mechanism of Skill Development in Sikkim

Institution/Program	Description and Coverage
State Institute of Capacity Building (SICB)	Core agency managing skill development; offers courses in hospitality, retail, IT, healthcare
Livelihood Schools (under SICB)	35+ schools across rural districts offering short-term employability courses
PM Kaushal Vikas Yojana (PMKVY)	13,200 youth trained; 6,700 placed (2016–22); courses aligned with NSQF
ITIs (Gangtok & Namchi)	Provide NCVT-approved training in trades such as mechanics, plumbing, and electrical works
Sikkim Skill University (SSU)	Offers NSQF-aligned diploma and degree programs; industry-linked curriculum
Sector Skill Councils (SSC collaborations)	Courses co-designed with SSCs in tourism, green construction, and healthcare

Source: SICB Reports (2022–23), MSDE, NSDC, Government of Sikkim

NEP 2020 Implementation in Sikkim

Sikkim has already implemented the NEP 2020 vocational education goals, as shown in Table 2. The state has included NSQF-aligned modules in postsecondary education, introduced vocational exposure programs in upper primary and secondary schools, and instituted "bagless day" internships in tribal communities. The national DIKSHA platform has trained over 200 vocational trainers, demonstrating a significant model of teacher readiness. These changes all show a stronger dedication to NEP's strategy of expanding access to work-integrated learning environments and integrating vocational education at all levels.

Table 2: NEP 2020 Alignment in Sikkim – Vocational Education Targets

Policy Reform (NEP 2020)	Target by 2025	Status in Sikkim (as of 2023)
Vocational exposure (Grades 6–12)	≥50% students	Piloted in 128 government school, 1 vocational college, schools under School–Livelihood Linkage Program
NSQF Curriculum Integration	Secondary & Higher Education	Implemented in schools, Polytechnique colleges, it is & Skill University and select colleges
Vocational Internships ("Bagless Days")	10 days/year for Grades 6–8	Implemented in all district
Teacher Capacity Building (DIKSHA platform)	Nationwide trainer readiness	>200 vocational trainers certified in Sikkim

Source: Ministry of Education, NEP Implementation Reports; Govt. of Sikkim (2023)

Skill Development Metrics – Sikkim vs. India

A comparative analysis reveals that Sikkim exceeds the national average on several indicators. Economically active vocational education in Sikkim outmatches the national record with a 4.2 vocational training institutes per lakh youth (national average being 2.8). Moreover, 42% of youth in Sikkim possess a skill certification which is also significantly higher compared to the national percentage of 27%. The youth unemployed population in Sikkim is under 3.4%, which is considerably lower than the national rate of 6.1%. This is indicative of the effective vocational programming which aids in fostering economic participation from trained individuals (Table 3).

Table 3: Skill Development comparative indicators, Sikkim vs. India (2022–23)

Indicator	Sikkim	India Average
Vocational Training Institutes (per 1L youth)	4.2	2.8
Students trained annually in skill programs	~15,600	—
Youth with skill certification	42%	27%
Unemployment rate (PLFS)	3.4%	6.1%
Entrepreneurship conversion (post-training)	22%	13%

Source: NITI Aayog IHR Report, MSDE Annual Reports, PLFS 2023, NSDC Dashboard

Employment Outcomes under Atmanirbhar Bharat

The Atmanirbhar Bharat framework's skill-based strategies have promoted entrepreneurial activities and jobs in Sikkim. SLBC banks along with the Department of Commerce implemented the MUDRA loan scheme which provided funding of ₹72.5 crore to almost 14,000 youth entrepreneurs. Under the Startup Sikkim Initiative, over 315 registered Startups within the fields of Tourism, Food Processing, and IT have been supported. Moreover, a large number of more than 4,200 Self Help Groups (SHGs) are actively participating in micro-ventures that have been trained under vocational skill training. These statistics highlight the ability of policies to shift the center of economic activity towards self-sufficient systems of income generation, or self-reliance (Refer to Table 4).

Table 4: Employment and Enterprise Outcomes under Atmanirbhar Bharat Initiatives

Scheme/Program	Implementing Agency	Key Results in Sikkim (2022–23)
PM Kaushal Vikas Yojana (PMKVY)	SICB & NSDC Partners	13,200 trained; 6,700 placed
Atmanirbhar Bharat (MUDRA/PMMY)	SLBC Banks, Dept. of Commerce	₹72.5 Cr loaned to ~14,000 youth-led micro-enterprises
Start-Up Sikkim	Dept. of Commerce & Industries	315+ startups registered; focus on tourism, IT, organic products
National Rural Livelihood Mission	Rural Development Dept., Sikkim	4,200+ SHGs engaged in food, tailoring, Eco-tourism sectors

Source: PMMY Dashboard, Startup India Portal, SICB Annual Report (2023)

Sectoral Skill Focus in Sikkim

The Economic Activity of the Region Sikkim placements and skill training. This is consistent with regional economic activity. For instance, employment in eco-tourism enterprises is associated with training in trekking and guiding in the tourism, hospitality, and service sectors. By emphasising cold-chain logistics and organic farming, green agriculture strengthens the area's standing as India's first entirely organic state. Construction and healthcare services are offered in response to public health and infrastructure outcomes, respectively, and IT training is offered for youth employment, e-governance, and digital freelance work. Training with immediate employability outcomes is ensured by this alignment (Table 5).

Table 5: Sectoral Focus Areas in Skill Training and Employment

Sector	Training Modules	Employment Linkages
Tourism & Hospitality	F&B, Tour Guiding, Housekeeping	Hotels, homestays, tour agencies (Gangtok, Namchi)
Green Agriculture	Organic farming, agri-processing	FPOs, horticulture departments, direct marketing platforms
Construction	Masonry, Plumbing, Electricals	PWD, private real estate developers
Healthcare	Basic nursing, lab assistant, first-aid	Clinics, primary health centers, outreach programs
Digital/IT Skills	MS Office, Graphic Design, Web development	Freelancing, e-Governance, start-ups, desktop publishing

Source: SICB, Sector Skill Councils, State Employment Exchanges

Vocational Performance: Sikkim vs. Other similar Himalayan States

In comparison to other Himalayan regions, Sikkim stands out as a peer benchmark leader. It has the highest youth participation in vocational training (42%), the greatest institutional density (4.2 institutes per lakh population), and an SDG-4 performance score of 85, surpassing both Himachal Pradesh (82) and Uttarakhand (79). These indicators illustrate the impact of Sikkim's integrated vocational education model and its potential to serve as an exemplar for other mountainous and geographically constrained regions (Table 6).

Table 6: Comparative Vocational Education Outcomes – Sikkim vs. Himalayan States

State	Youth in Vocational Training (%)	Institutes per 1L Pop.	SDG-4 Score
Sikkim	42%	4.2	85
Himachal Pradesh	28%	3.1	82
Uttarakhand	25%	3.4	79
Meghalaya	19%	2.1	75

Source: NITI Aayog SDG India Index (2023); State Skill Reports- Sikkim (2024)

Discussion

The investigation's findings provide insight into how vocational and skill education has developed in Sikkim as a transformative policy tool for attaining Sustainable Development Goal 4 (SDG-4), which emphasises education and the use of skill-based approaches as an essential component of inclusive, equitable, and lifelong learning. National surveys, policy documents, institutional datasets, and other pertinent frameworks revealed significant trends. First off, Sikkim's strong institutional framework—which includes the State Institute of Capacity Building (SICB), Skill Livelihood Schools, and PMKVY centers—is what holds the other Himalayan states together, even when it comes to skill livelihood education. In contrast to Pant & Rawat (2017) and Tiwari et al. (2019), who observed significant infrastructure deficiencies, Sikkim's ecosystem is situated in the outreach deficits in northeastern hill region, it is apparent that Sikkim's network of over 35 livelihood schools illustrates strategic devolution and grassroots outreach. This key component of the community-embedded skilling model is characterised as a move away from capital-based or poleward models and towards vocational delivery models. The way that NEP 2020 is being implemented in Sikkim is another important distinction. There is evidence that Sikkim is implementing 'bagless days' and certification pathways that are in line with NSQF, despite Jain (2021) portraying slower-paced policies regarding the vocationalization of school curricula, particularly in public schools. One known obstacle to implementation in rural India has been the scarcity of qualified trainers, as noted by Kumar & George (2022). This issue is actively addressed by the involvement of more than 200 qualified vocational educators.

In addition to surpassing other states in meeting national standards, Sikkim excels in quantitative metrics. Their unemployment rate is 3.4% compared to the national average of 6.1%, and they boast a youth skill certification rate of 42%, which is almost 15 percentage points higher than the national average. In stark contrast to the findings of Deshpande and Das (2018), who noted that the low employment conversion ratios in the central Indian states were caused by a lack of market-driven training, this suggests that vocational training in Sikkim is producing economic mobility. In the context of Sikkim, the effects of Atmanirbhar Bharat and the Skill India initiatives appear particularly noteworthy. With more than 315 startups supported by the Startup Sikkim initiative and roughly 14,000 young people obtaining MUDRA loans totalling ₹72.5 crore, the policy-propelling entrepreneurship gap shows promise. These numbers are noteworthy in light of the decline in MUDRA adoption in hilly areas brought on by the documentation and access obstacles mentioned by Ramakrishna (2019). Additionally, Sikkim's regionally responsive vocational outcomes—which differ from the pan-India neo vocational school model programs criticised for not being in line with industry and branding as one-size-fits-all curricula—are a result of the sectoral

fit with the state's ecology and economy, including organic agriculture, eco-tourism, health services, and green construction (MSDE Annual Review 2020). Sikkim is a model for place-based skill development because of its integration of local knowledge systems and economic priorities.

The inter-state comparison supports this interpretation even more. In terms of institutional penetration as well as training rates and SDG-4 index scores, Sikkim outperforms Himachal Pradesh, Uttarakhand, and Meghalaya. In light of central one-size-fits-all strategies, these findings corroborate NITI Aayog's 2018 report on the Himalayan region, which made the case for the existence of customised state-level skill ecosystems. In conclusion, the conversation reaffirms that Sikkim's approach to vocational education is an example of a regional level strategy that is not incidental and has a strong connection to both educational equity and economic growth. Additionally, it shows how state-led, youth-focused, and targeted vocational education can address the education-employment gap, especially in hard-to-reach geographic areas, and surpass national thresholds and NEP 2020-endorsed principles.

Conclusion

Education in Sikkim has gotten closer to fulfilling SDG-4 requirements when combined with vocational training. Through the integration of NEP 2020, Atmanirbhar Bharat, and other skill initiatives, Sikkim's youth now possess the knowledge and abilities necessary for self-employment, promoting a culture of independence. The NEP 2020 vocational goals have already been achieved in Sikkim, indicating a high degree of policy implementation in the educational systems. In terms of institutional coverage, youth skill certification, and overall SDG-4 achievement, the State is the leader in the Indian Himalayan region. High conversion rates from training to business are demonstrated by the entrepreneurship ecosystem, which is supported by MUDRA and Start-Up Sikkim. Sikkim State excels in organic farming, ecotourism, and green infrastructure. It is advised that education be strengthened in the future by improving curricula to better meet industry demands, increasing mentorship for new business startups in rural areas, and developing digital resources for vocational training.

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