

A Drill - Down Approach Towards Talent Supply Scenario in Sikkim

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Abstract

The human capital, armoured with proper education, training, and skill sets, can lead to economic development. Talent demand and supply analysis enables the creation, management, and delivery of actionable insights for enhancing the effectiveness of the prospective manpower. India is a fairly diverse country culturally, geographically, socially, and economically. However, this enormity has also delivered a disproportionate development, which broadens as we move towards the North-East Region of India (NER). The NER has portrayed extreme economic possibilities with its varied biodiversity and the long international border with the Association of Southeast Asian Nations (ASEAN) countries. India has tried since long to conquer the skill battle forefront, for which a wave of initiatives was launched in the form of the National Skill Development Mission in the entire country since 2014. This would help India to attain its ambitious goal of building a training ecosystem for a minimum of 300 million people by the year 2022. The present study attempted to understand the talent supply in Sikkim using a drill-down approach. The approach attempted to provide insights into the talent prospects in India followed by NER and Sikkim. The present study was conducted using descriptive analysis using secondary data of passed out talents, the data for which were collected from the All India Survey on Higher Education (AISHE). The study illustrated the district wise, program wise, and discipline wise cumulative contribution trend in Sikkim from 2011 – 2018. The study contributes to the knowledge of the talent pool comprising NER, with a special focus on Sikkim.

JEL Classification : I210, I230, I250

Keywords : skill development, higher educational institutions, North Eastern region of India, Sikkim, talent supply, talent pool

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The importance of skill and skill development is the focal point for any labour market. Countries with highly skilled human capital tend to have higher GDP and per capita income along with knowledge and skills as a major driving force of socioeconomic growth and development (Saini, 2015). Tarique and Schuler (2010) stated that to achieve sustainable growth in the increased global competition, skilled talent with enhanced quality and innovation at a low cost is a bare minimum requirement. Deme, Franck, and Naqvi (2005) opined that the increased government expenditure on education, training, and skill acquisition leads to a lower unemployment rate and expansion of the urban formal sector, however, there exists amplified levels of skills

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mismatch, which curtail economies to develop at their maximum. Singh (2003) opined that unemployment is attributed to labour market deficiency in terms of shortage of skilled and educated labour force rather than to the deficiency of aggregate demand.

Education plays an important role in imparting skills and can be highly effective, if combined with other factors. According to the World Economic Forum (2014), closer integration of education and work can be a measure to address the skill mismatch, including stakeholders jointly embarking on the process to communicate skill needs, develop curricula, and mutually deliver education and training in schools and workplaces. Education has skyrocketed with technology amalgamation, amplified utilization of information and communication technology (ICTs), and massive open online courses (MOOCs) to condense the barriers in knowledge delivery. Ahmad (2020) highlighted that digital initiatives have necessitated evolving strategies for effective adoption and utilization in higher educational institutions (HEIs) to achieve the anticipated benefits and outcomes for sustainable change. Arora and Srinivasan (2020) stated that the teaching - learning method has found a new alternative in the virtual delivery of classes.

The skill movement in India has gained pace in the last decade, with the launch of an ambitious project, the National Skill Development Mission in November 2014 by the Ministry of Skill Development & Entrepreneurship (MSDE) with the vision of providing the institutional capacity to train a minimum of 300 million skilled people by the year 2022. Jain (2017) stated that the skill development scheme initiated by the Government of India is striving in the transition to a knowledge-based economy by creating a skilled workforce. The Indian demography has an added advantage of being the youngest nation in the world, with more than 54% of the total population below 25 years of age, and over 62% of the population in the working-age group (15 – 59 years). The skill mission is aided by specific organizations which act as functional arms of MSDE, including the Skill Development Agency (NSDA), National Skill Development Corporation (NSDC), National Skill Development Fund (NSDF), and 33 Sector Skill Councils (SSCs) as well as 187 training partners registered with NSDC. According to Aggarwal (2016), India is at the initial stage of skill development, where initiatives taken by the government and its partner agencies for an effective implementation of the skill development system in the economy face many unresolved issues/challenges. This transition is even a bigger challenge for the country as some regions like the North Eastern Region of India (NER) are underdeveloped due to geographical remoteness and political misfits.

According to the Federation of Indian Chambers of Commerce and Industry & PwC (2014, p. 9) :

The bilateral trade between India and the ASEAN countries along with China, Nepal, Bhutan, and Bangladesh has been estimated at ~ USD 152 billion during 2013 –14, and it has been forecasted that India's bilateral trade with ASEAN countries, China, Bhutan, Nepal, and Bangladesh will cross USD 1,000 billion by 2035. North East India has trade potential of anywhere between INR 35,000 crore and INR 180,000 crore.

Though India has trade relations with these countries, however, the trade through the NER accounts to a mere 1% – 2%. Therefore, it can be seen that the future of the economic growth of the nation depends on reaping the terrestrial advantage of NER.

The NER, having greater economic viability, is still shadowed by underdevelopment economically and socially as well as also in terms of inaccessibility and infrastructure. However, the journey from underdevelopment to development can be measured with the help of the quality of human capital. Therefore, it becomes imperative in the present context to closely determine the human capital as graduates from HEIs will eventually lead to the creation of skilled manpower. Hence, the present study aims to analyze the total talent supply of Sikkim, a small land-bound Himalayan state, sharing three international borders with Tibet

Autonomous Region – China from North, Nepal from West, and Bhutan from East, and is one of the states comprising the North-Eastern sisters. NSDC has also stated that the youths of Sikkim have high to medium aspirations for sector employment in industries like information technology, food processing, healthcare, education and skill development, and construction. The paper has also tried to study the total talent pool of NER and India. The paper has used the drill-down approach to study the total talent pool of India. This is followed by an analysis of total talent supply in the NER, which is followed by a detailed analysis of the total talent pool in the state of Sikkim.

Literature Review

Human capital armoured with correct skill sets and education leads a nation to holistic development. Aggarwal (2017) stated that education is an important indicator of economic development and a key contributor to the Human Development Index. In India, HEIs have seen a radical boost with only 20 universities and 591 colleges at independence (Gupta & Gupta, 2012) to 903 universities, 39,050 colleges, and 10,011 standalone institutions (Ministry of Human Resource Development, Government of India, 2018). Shegelman, Shchukin, and Vasilev (2015) suggested that integration of HEIs and industry promoted higher quality professionals. Vijayudu (2016) stated that reforms in higher education and skill development resulted in developing highly skilled manpower, with expertise in multiple fields of specialization.

There is an aspect of 'quality over quantity' even in human capital. Gereffi, Wadhwa, Rissing, and Ong (2008) concluded that 80.7% of U.S. engineers were employable, while only 10% of Chinese engineers and 25% of Indian engineers were employable. Gupta and Gupta (2012) in their study listed the challenges to higher education in India like the demand-supply gap, quality education, research and development, and faculty shortage. Chowdhury (2014) highlighted some major concerns on India's ability to create a balanced mix of 'employment' and 'quality employment' and that co-existence of 'unemployability' and 'skill shortages' in certain sectors depicted the prevalence of 'skill mismatches' or allocative inefficiency in the Indian labour market. Palanithurai (2014) stressed that there was a gap between the policy of the government and the implementation in the HEIs in terms of skilling the youth. Yeravdekar and Tiwari (2014) stated that the quality aspect of the Indian sub-par education system lacked in many facets like a contribution to skill-development, job-preparedness, and quality research. According to the National Council of Applied Economic Research (2018), 1.25 million people joined the workforce, among them, however, 54% of the graduates were unemployable upon graduation.

Education, as a development indicator, is at the rear, even in NER. Ullah (2015) concluded that poor infrastructure and connectivity, political instability, insurgencies, and internal displacement have been hindrances in setting up of national and international institutions in NER. Konwar and Chakraborty (2013) stated that drop-out ratio, unavailability of qualified teaching staff, lack of innovative outlook and research, and lack of campus recruitment were the cons of higher education in NER. Lack of employment opportunities and higher educational facilities have acted as major contributors to the brain drain phenomenon as the human capital from NER venture outside the region leading to hindered development of the region. Reimeingam (2011) listed the push factors for forced migration as resource crisis, lack of educational infrastructures, growing unemployment problems, and protracted conflict. Meetei, Singh, Sarma, and Mutum (2019) stated that even after a doctoral degree, the students studying in different departments in NER had a common fear of not getting a matching job after Ph.D.

It can be said that despite government policies favoring skill development, the formal educational institutions, including higher education, have not been able to effectively align with the priorities and initiatives towards attaining skill development. These types of drill-down approaches will help the State and Central governments to formulate policy documents. Therefore, this study is an attempt to analyze the talent supply in Sikkim for better utilization of existing and prospective talents in the state.

Research Methodology

The primary objective of the study is to describe the talent supply contribution of Sikkim to the NER and the National Talent Pool. The study also attempts to explore the district wise, program wise, and discipline wise talent supply of Sikkim. To accomplish the above-mentioned objective, we gathered the secondary data of passed out students from 2011–12 to 2017–18 from the All India Survey on Higher Education (AISHE)¹ conducted by the Ministry of Human Resource Development (MHRD). The contribution of Sikkim to the NER and NER to the National Talent Pool was calculated using simple percentage analysis. The distribution of the Sikkim talent supply is exhibited through crosstabs and figures based on district, programs, and discipline.

Analysis and Results

According to the India Skills Report (2019, p. 15), “the Indian workforce is estimated to increase to approximately 600 million by the year 2022 from the current 473 million.” In this context, the contribution of NER, and particularly Sikkim, is worth studying. To reap the maximum benefits of the future economic viability, it is vital

Table 1. Talent Supply Contribution Trend in India, NER, & Sikkim

Year	Region	India		NER		Sikkim	
		No.	%	No.	% [#]	No.	% ^{\$}
2011–12	UG	54,69,144	100	1,02,025	1.87	3,652	3.58
	PG	11,12,529	100	17,376	1.56	350	2.01
	Integrated	20,131	100	1,026	5.10	37	3.61
	Certificate	68,987	100	619	0.90	-	-
	Diploma	5,57,753	100	4,127	0.74	365	8.84
	PG Diploma	88,785	100	1,397	1.57	-	-
	Total	73,17,329	100	1,26,570	1.73	4,404	3.48
2014–15	UG	62,00,037	100	1,44,091	2.32	3,016	2.09
	PG	14,05,928	100	22,220	1.58	425	1.91
	Integrated	22,258	100	592	2.66	60	10.14
	Certificate	75,487	100	1,889	2.50	24	1.27
	Diploma	7,22,952	100	18,650	2.58	429	2.30
	PG Diploma	2,21,576	100	1,576	0.71	3	0.19
	Total	86,48,238	100	1,89,018	2.19	3,957	2.09
2017–18	UG	59,58,546	100	1,42,623	2.39	3,880	2.72
	PG	14,37,980	100	24,652	1.71	1,055	4.28
	Integrated	26,489	100	534	2.02	29	5.43
	Certificate	63,952	100	1,294	2.02	2	0.15
	Diploma	6,84,765	100	20,331	2.97	496	2.44
	PG Diploma	1,33,546	100	1,292	0.97	-	-
	Total	83,05,278	100	1,90,726	2.3	5,462	2.86

Source : Various annual reports from All India Survey on Higher Education (AISHE) ; Compiled & designed by the authors.

Note. # represents the percentage of contribution from NER to the National Talent Pool ; \$ represents the percentage of contribution from Sikkim to the total NER talent supply pool.

¹All India Survey on Higher Education Reports can be accessed at <http://aishe.nic.in/aishe/reports>

to reveal the higher education status for better policymaking. To understand the composition, we have used a simple percentage analysis to understand the composition of the National Talent Pool into the contribution from NER and Sikkim.

Table 1 depicts that in the year 2011–12, NER's contribution to National Talent Pool was 1.73% and the contribution of Sikkim to the NE Regional Talent Pool was 3.48%. Likewise, during 2014–15, NER's contribution to the National Talent Pool was 2.19% and the contribution of Sikkim to the NE Regional Talent Pool was 2.09%. Similarly, NER's contribution to National Talent Pool was 2.09%, and the contribution of Sikkim to the NE Regional Talent Pool was 2.73% during 2017–18.

District Wise Cumulative Contribution Trend in Sikkim During 2011 – 18

The Sikkim state is segregated into four districts namely, North, East, West, and South. Twenty nine prominent higher educational institutions (HEIs) are situated in the East district, five HEIs in the South, and four HEIs in the West, respectively ; whereas, the North district has only one educational institution with no passed-out talent during the study period. Therefore, we opted to explore the district - wise talent supply in Sikkim. Table 2 depicts the program wise cumulative contribution of talent supplied by the districts.

It can be inferred from Table 2 that in the undergraduate (UG) programme category, the overall contribution of East and West districts showed a consistently increasing trend ; whereas, the South district exhibited a declining trend. Likewise, in the postgraduate (PG) programme category, the overall contribution of the East district showed a consistently increasing trend ; whereas, the South district exhibited a declining trend. In the Diploma programme category, the East district showed a slight decline in the talent contribution trend ; whereas, the South district was

Table 2. District Wise Cumulative Contribution Trend in Sikkim During 2011 – 18

Programs	Districts	2011–12		2011–15		2011–18	
		No.	(%)	No.	(%)	No.	(%)
UG	East	1,934	52.95	8,359	71.91	15,080	71.93
	West	100	2.73	393	3.38	1215	5.80
	South	1,618	44.3	2873	24.71	4670	22.28
	Total	3,652	100	11,625	100	20,965	100
PG	East	333	95.14	1451	98.84	4,032	99.43
	South	17	4.85	17	1.16	23	0.57
	Total	350	100	1,468	100	4,055	100
Integrated	East	37	100	201	100	374	100
	Total	37	100	201	100	374	100
Certificate	East	-	-	62	100	91	100
	Total	-	-	62	100	91	100
Diploma	East	261	71.5	1025	71.18	2,076	69.45
	West	-	-	-	-	60	2.01
	South	104	28.49	415	28.82	853	28.54
	Total	365	100	1440	100	2989	100
PG Diploma	East	-	-	3	100	4	100
	Total	-	-	3	100	4	100
Total Talent Supply		4,404	15.46%	14,779	51.97%	28,478	100%

Source : Various annual reports from All India Survey on Higher Education (AISHE). Compiled & designed by the authors.

consistent. West district had just initiated the talent contribution count. In the certificate, integrated, and the PG diploma programme categories, the contribution was only from the East district, portraying that the talent supply was concentrated in the East district.

Discipline Wise Cumulative Contribution Trend in Sikkim During 2011 – 18

In Sikkim, the HEIs provide various programmes in different disciplines, which can be broadly classified into science, engineering, & technology (engg. & tech) ; medical science ; commerce ; management ; arts ; education ; and law. The discipline wise analysis of the talent supply in Sikkim provides a discipline wise cumulative contribution trend. Table 3 depicts the discipline wise cumulative contribution of talent grouped under different programs.

Table 3 reveals that in the undergraduate (UG) programme category, the overall talent contribution in science, engineering, & technology and medical science was consistently increasing. Similarly, talent in commerce and management was also increasing ; whereas, talent supply in the arts stream was drastically decreasing. Education showed consistent growth ; whereas, law saw emergence of talent in the postgraduate (PG) programme category. The overall talent contribution in science, arts, and commerce was consistently increasing. The fields of engineering & technology, medical science, and education showed a downtrend ; whereas, law initiated a count. The integrated programs, science, medical science, and arts were moving upwards, while law was consistent.

Table 3. Discipline Wise Cumulative Contribution Trend in Sikkim During 2011 – 18

Programs	Discipline	2011–12		2011–15		2011–18	
		No.	%	No.	%	No.	%
UG	Science	194	5.31	878	7.55	2,269	10.82
	Engg. & Tech	655	17.93	2,744	23.60	4,821	23.00
	Medical Science	83	2.27	764	6.57	1,546	7.37
	Commerce	90	2.46	633	5.45	1,484	7.08
	Management	146	3.99	628	5.40	1,055	5.03
	Arts	2,185	59.83	4,797	41.26	7,821	37.31
	Education	299	8.18	1,181	10.16	1,955	9.33
	Law	-	-	-	-	14	0.07
	Total	3,652	100	11,625	100	20,965	100
PG	Science	36	10.28	191	13.01	685	16.89
	Engg. & Tech	55	15.71	248	16.89	504	12.43
	Medical Science	123	35.14	325	22.14	531	13.09
	Commerce	-	-	4	0.27	200	4.93
	Management	82	23.42	279	19.01	586	14.45
	Arts	22	6.28	292	19.89	1,254	30.92
	Education	32	9.14	129	8.79	251	6.19
	Law	-	-	-	-	44	1.09
	Total	350	100	1,468	100	4,055	100
Integrated	Science	-	-	20	9.95	37	9.89
	Medical Science	-	-	11	5.47	34	9.09
	Arts	-	-	14	6.97	31	8.29
	Law	37	100	156	77.61	272	72.73
	Total	37	100	201	100	374	100

Certificate	Medical Science	-	-	62	100	91	100
	Total	-	-	62	100	91	100
Diploma	Science	38	10.41	154	10.69	252	8.43
	Engg. & Tech	213	58.35	985	68.40	1,794	60.02
	Medical Science	114	31.23	301	20.90	700	23.42
	Education	-	-	-	-	243	8.13
	Total	365	100	1,440	100	2,989	100
PG Diploma	Science	-	-	3	100	4	100
	Total	-	-	3	100	4	100
Total Talent Supply		4,404	15.46%	14,799	51.97%	28,478	100%

Source : Various annual reports from All India Survey on Higher Education (AISHE) ; Compiled & designed by the authors.

In the certificate programme category, medical science, and the PG diploma programme category, science was consistent. Diploma programs ; science, engineering, & technology ; and medical science showed a slightly decreasing trend in the talent supply in Sikkim.

Discussion and Managerial Implications

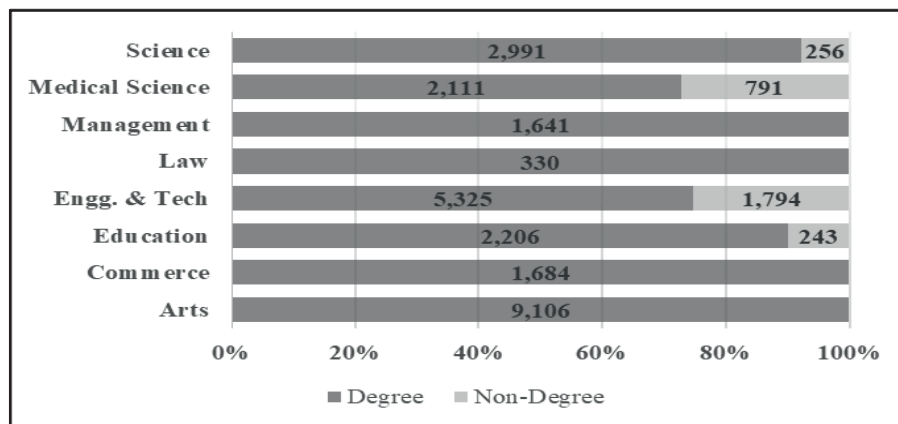
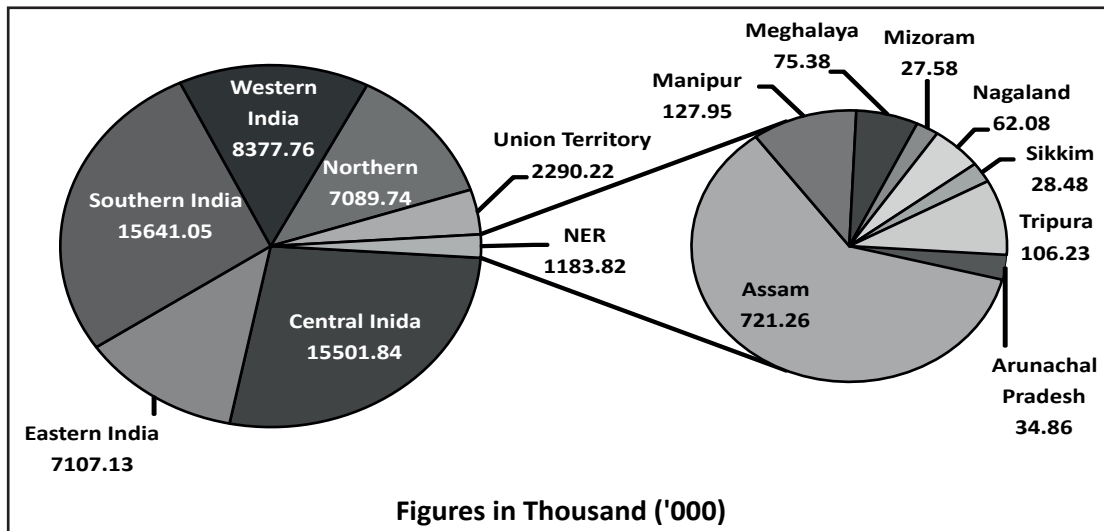
The talent demand and supply analysis allows for enhanced management and fostering of the human capital, which is at the core of production and development. The backbone of any nation is the human capital, which can adapt and change the course of future societies. It is of paramount necessity to study the composition and attributes of the talent pool to channelize the strengths and work upon the weaknesses. The study contributes to the knowledge of the talent pool comprising NER, with a special focus on Sikkim. The results, however, paint a bleak picture, as the study further drills into the talent matrix of the small state. Though the significance of NER has already been discussed concerning its trade, commerce, and economic viability to the ASEAN countries, the educational background of the region shows a fragile picture. The contribution from NER is the least as compared to the contributions of other regions of India (Figure 1).

Even though NER is a conglomeration of eight states, it is the lowest contributor, as compared to other regions in India. Sikkim, as a state, also amounts as the lowest contributor among other NER states. This clearly shows the presence of disrupted progress across the region. The factors that add to the disparities in growth are lack of physical and industrial infrastructure, low connectivity, geographical isolation, and terrestrial complications.

Sikkim, a land-bounded Himalayan state, sharing international borders with China, Nepal, and Bhutan, is also a victim of the disparity in development. A glance at the inter-district talent supply shows that the East district contributed the maximum followed by South and West, while the North district has almost next to nil contribution. The paradox of the situation is that geographically, North Sikkim (4226 km²) is four times larger than East Sikkim (964 km²) ; whereas, the East district (295/km²) is much more densely populated than the North district (10/km²). The North district of Sikkim, which is famed for its scenic beauty combined with steep valleys with the prevalence of landslides, extreme weather conditions, and alpine attitudes, is also the seventh least populous district in the country, making inhabitation difficult. The reason why people flock to other districts, especially the East, is that it hosts the capital Gangtok, with administrative headquarters, HEIs, and hospitals.

Further, the state has a total of 39 HEIs, among which six are for medical & allied health sciences ; whereas two for technical & engineering education, while the rest focus on non-professional courses. As a result, the talent supply from the arts discipline is maximum. The disparity between the talent supply from the UG courses, as compared to other courses, is alarming as only less than 20% opt for PG courses in Sikkim. The reason behind the

Figure 1. A Drill – Down Approach Towards the Talent Supply in Sikkim



***Note.** There is **NO** recorded talent supply from North District in Sikkim.

handful turnover can be directed to limited institutions offering higher degrees other than graduation. The students generally move out of the state in search of premier educational institutions and higher educational opportunities, which is also one of the reasons for the negligible contribution in the regional and National Talent Pool. The shortage of HEIs has acted as a push factor for the youths of Sikkim to migrate to other parts of the country for education and employment.

The percentage of contribution from Sikkim to NER and from NER to India is an eye-opener to the State and Central government and policymakers. The success of skilling 300 million skilled people by the year 2022 is only possible if the skilling ecosystem is holistically distributed across all regions, including the NER. The integration of skill-based training into the academic cycle of the educational establishments based on the National Occupation Standards set through SSCs under NSDC has stimulated the Skill India mission into operation.

The focus of MSDE on training and vocational education along with entrepreneurship has opened an array of opportunities to private training providers and start-up businesses. Similarly, schemes like North East BPO (Business Process Outsourcing) Promotion Scheme (NEBPS), which specifically focuses on NER, envisaged under the Digital India Program, seeks to incentivize the establishment of BPO/ ITeS (information technology enabled services) operations in the North East Region (NER), which acts as a lucrative scheme to retain and provide employment to youths of NER. The pathway of cumulative development and the vision of transforming India into a 'knowledge-based economy' depends upon actionable skill maps to be collectively implemented by skill stakeholders, including the academia, industries, government, training providers, and the talent pool. The policymakers of the NER, including Sikkim, have to reap the benefits of provided schemes to emerge victorious.

Limitations of the Study and Scope for Future Research

Talent supply takes place through both government and private funded formal (colleges & universities) and informal education modes, such as skill development centres, training centres, finishing schools, etc. The paper describes in detail the talent supply generated through the regular (formal) programs offered by HEIs in Sikkim as the data for the talent supplied through the informal educational mode cannot be authenticated by authorized agencies. In future studies, the research can gather the aforesaid data and visualize both formal and informal modes of talent supply in Sikkim.

Authors' Contribution

Dr. Ravi Shekhar Vishal and Dr. B. Muthupandian conceived the idea and developed the design to undertake the study. Prasansha Dong extracted the secondary data of passed out students from 2011–12 to 2017–18 from the web portal of All India Survey on Higher Education (AISHE) (<http://aishe.nic.in/aishe/reports>). She also collected the relevant research papers of high repute, and filtered these based on keywords. The numerical computations were done by Dr. B. Muthupandian using Microsoft Excel. Ms. Prasansha Dong wrote the manuscript in consultation with both the co-authors.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest, or non-financial interest in the subject matter, or materials discussed in this manuscript.

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