



# Skills Gap Study of the **North-East**



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## **About National Skill Development Corporation**

National Skill Development Corporation (NSDC) is a pioneering Public Private Partnership (PPP), set up under the aegis of the Ministry of Finance, in July 2008, with a mandate to skill 150 million by 2022.

NSDC's mission is as follows:

- Upgrade skills to international standards through significant industry involvement and develop necessary frameworks for standards, curriculum and quality assurance.
- Enhance, support and coordinate private sector initiatives for skill development through appropriate PPP models; strive for significant operational and financial involvement from the private sector.
- Focus on underprivileged sections of society and backward regions of the country thereby enabling a move out of poverty; similarly, focus significantly on the unorganised or informal sector workforce.
- Play the role of a 'market-maker' by bringing financing or viability gap funding, particularly in sectors where market mechanisms are ineffective or missing.
- Prioritise initiatives that can have multiplier or catalytic effect as opposed to one-off impact.

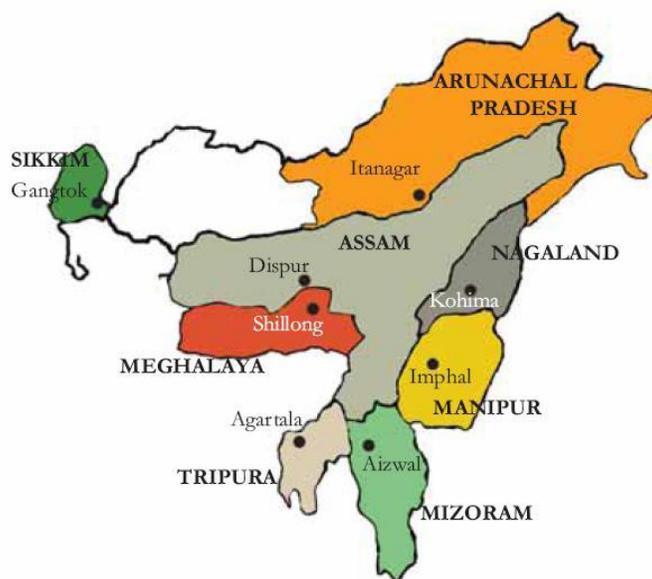
Globally, NSDC is a unique PPP in the area of skill development. NSDC's key differentiators are as follows:

- Funds as well as provides strategic support to the skill development activities of stakeholders and potential partners.
- Monitors implementation over entire life of the project.
- Enables skill development in high growth and unorganised sectors.
- Facilitates creation of 'Train the Trainer', centres
- Accountable for raising skills to international standards through sector specific industry involvement and setting systems and frameworks for standards, curriculum and quality assurance.
- Set up Sector Skill Councils
- Commissions periodic reports including skill gap surveys
- Support of industry associations, hence access to the best industry data enabling creation of industry specific curriculum, employability, etc.
- Facilitates creation of Labour Market Information Systems (LMIS)

## Foreword

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The North Eastern States comprise Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura.



The eight States located in India's North-East cover an area of 2,62,179 sq. km. constituting 7.9 per cent of the country's total geographical area, and 46million people or about 4 per cent of the total population of the country (Census 2011).

Most North Eastern States have remained one of the under developed and untapped regions of the country. Some of the reasons are as follows:

- Remoteness and isolation because of being mostly landlocked
- Lack of access to markets
- Limited connectivity to the rest of India
- Limited infrastructure
- Challenges in land acquisition
- Widespread use of traditional cultivation methods that are inefficient
- Lack of facilities such as cold storage for warehousing fruits and transporting to market
- Inadequate infrastructure that could help transport goods from the region
- Difficulty in accessing bank credit for enterprises
- Lack of confidence in seeking credit by small and tiny sector enterprises

- Poor awareness of markets, changing demand patterns, raw material sourcing, technology, branding and quality standards
- High and widespread dependence on Governments' programmes for market access, subsidy and training
- Educated seeking, mostly, Government jobs or relocating out of the region
- Stigma against labour oriented jobs
- Dependence on, mainly, local market for selling products from small and tiny sector
- Inadequate telecommunications connectivity

Despite these disadvantages, there are success stories of entrepreneurs who have started on small scale, overcome the difficulties and have grown in the last 15-20 years to make a name for themselves in the region. Though small now, their number is likely to grow as more people travel outside the region, attain education, training and skills, investing is made attractive by the States, markets linkages are developed, substantial buyers are attracted to the products from the region and, trained and skilled persons can be gainfully employed within the region.

It is in this context that the North Eastern Council (NEC) and the Ministry of Development of North Eastern Region (DoNER) have prepared Vision 2020 for the North Eastern Region.

The Vision 2020 envisages the following targets by 2020:

- Overall GSDP growth at a CAGR of 11.64 per cent between 2007-09 and 2019-20.
- Overall per capita income growth of 12.95 per cent between 2007-09 and 2019-20.

To support this vision, the Ministry of Development of North Eastern Region has formulated a Strategic Plan 2010-16 focusing on three broad dimensions:

**(A) Rapid socio-economic development:**

- Facilitating preparation of Strategic Plans for key sectors such as Agriculture, Road, Civil Aviation, Railways, Inland Water Transport, Power, Tele-Communication & IT, HRD, Health and Handloom & Handicrafts and implementation of the Plans so prepared by the line-Ministries and North Eastern States.
- Facilitating formulation of Projects, Schemes and Programmes by major Central Ministries in consonance with the requirement of the North-Eastern Region.

- Increasing the effectiveness of developmental expenditure in the North-East Region through higher levels of transparency, systemic improvements and independent monitoring mechanism.
- Creating an in-house database on important socio-economic indicators in the Region and its periodic assessment.
- Facilitating preparation of Regional Plan by the NEC.
- Providing critical support to the NEC for identification of appropriate regional projects and their implementation.
- Facilitating funding by External Agencies in critical Sectors in the North Eastern States.
- Undertaking pilot or demonstration projects in the North-East Region in certain sectors to provide fillip to these sectors.

**(B) Building capacities and competencies in critical sectors in the North Eastern States**

- Preparation of a Plan of Action for building capacities and competencies in critical sectors in the North Eastern States.
- Identifying institutes and organizations for imparting training and building capacities in the North Eastern Region.
- Setting up of Training Institutes in the Region in important fields through line Ministries, NEC or States.
- Augmenting the capacity of the existing training institutes in the North Eastern States.
- Use of IT as a tool to upgrade skills.

**(C) Promote the strengths of the Region**

- Preparation of a 'Plan of Action' for projecting and promoting key strengths of the Region.
- Promoting student and cultural exchanges among the States of the Region on one hand and between the Region and the rest of the country.
- Organizing business summits, exhibitions and cultural festivals to promote the Region.
- Undertaking well-conceived promotional campaigns in the print and electronic media for projecting a positive image of the Region.
- Arranging festivals and cultural exchanges between the Region and the neighbouring countries.
- Highlighting the achievements and success stories from the Region in mainstream media.
- Instituting an Award Scheme to honour and showcase the achievements of talented people of the Region.

While this requires substantial investment, implementation of Action Agenda outlined in the Vision and Strategic Plan, it also requires imparting of skills at all levels.

The North Eastern States, clubbed together, have some common attributes. But they also have significant variations related to culture, language, values, work preferences and ethics, and overall environment related to Government, infrastructure, terrain, proximity to or availability of markets and services. Hence, the skilling interventions may vary across states and districts despite, similarities of activities.

Given the above background, ICRA Management Consulting Services Limited (IMaCS) has been mandated by the NSDC to assist in identifying development and employment potential of districts of North Eastern States.

Sikkim is a land-locked state that lies nestled in the Himalayas and bordering Nepal, China, Bhutan and West Bengal. Sikkim attained statehood in 1975. Sikkim has a total land area of 7,096 sq. km. with a population of 607,688 people (Census 2011). Sikkim is a peaceful state and among the economically vibrant states of North East.



*This report has been structured in three parts:*

**Part I** includes Foreword, Acknowledgements, Approach and Methodology, and Study Limitations.

**Part II** concentrates on the diagnostic analysis of Sikkim, human resources requirement, skill gaps assessed for Sikkim.

**Part III** presents a detailed set of recommendations for Sikkim.

## **Acknowledgements**

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Carrying out a large scale survey is always a challenge. However, this task was made easy for the team by the support that they received from various stakeholders. The team acknowledges, with grateful thanks, useful information, references and support provided by NSDC and Ministry of Development of North Eastern Region.

IMaCS team has travelled extensively through the districts of the eight North Eastern States to conduct the surveys for this study. The team has interacted with cross-section of stakeholders. In Sikkim, this survey exercise would not have been possible without the support of key stakeholders some of whom we have listed below.

- Mr Tsegyal Tashi, Special Secretary, Department of Planning, Economic Reforms and NEC affairs
- Mr. A K Giri, Secretary, Energy and Power Department
- Mr. Euthenpa, Special Secretary, Industries and Commerce Department
- Ms. N Euthenpa, Secretary, Tourism Department
- Mr. D Anandan, Deputy Commissioner, East Sikkim

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**PART – I: Introduction**

## 1. Report Objectives

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National Skill Development Corporation (NSDC) has mandated ICRA Management Consulting Services Limited (IMaCS) to assess the development and employment generation potential of eight North Eastern states of India. As per the Terms of Reference, the report objectives are as follows:

- i. Review the socio-economic profile of the North Eastern Region
- ii. Identify developmental opportunities keeping in mind factor endowments and stakeholder perspectives
- iii. Identify specific developmental initiatives/projects which also have impact on employment generation
- iv. Assess skills required to aid in such employment generation

## 2. Approach and Methodology

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The study has been conducted in three phases:

### **Phase – 1: Diagnostic Phase**

The objective of this phase was to understand the socio-economic profile of the North Eastern Region. The focus was on analyzing the economic and social position of the Region based on evolution of the level and type of economic activity and social development in each State. The factor advantages, constraints facing the Region either due to Regional factors or common among the states, and the challenges going forward have been analysed. We have thus identified the factor endowments of the State and the potential it holds. At the end of this stage, we have presented a snapshot of the State on economic and social aspects and a SWOT analysis of the State.

### **Phase – 2: Synthesis Phase**

This was carried-out in two modules:

Module 1: Assessment of Development Potential

Module 2: Assessment of Employment Potential and Gaps

### **Module 1: Assessment of Development Potential:**

The objective of this phase was to identify development opportunities across formal and informal sectors which provide livelihood opportunities for employment. We have also kept in mind the opportunities for employment/livelihood generation identified as per the Vision 2020. This leads to the framework for identification of formal and informal sector employment/skilling opportunities

For this exercise, we have interacted with a cross-section of stakeholders of the Government/Industry to understand the following:

- What are the key developmental areas to focus?
- What needs to be done to leverage key strengths and factor endowments?
- How can bottlenecks to development be cleared?
- What various stakeholders need to do for development?

Based on the factor endowments and primary surveys conducted, we have identified potential and high growth opportunities for North Eastern States.

### **Module 2: Assessment of Employment Potential**

For the developmental opportunities identified, we have assessed the following:

- Employment potential in the Region and on account of these identified developmental opportunities
- Skills required to be developed among the North Eastern Region workforce to tap into the same.

This phase has been executed by: Profiling skills required sustaining traditional skills and tapping into factor endowments, especially in the informal sector (wherever scalable) and Interacting with industry (small, medium and large) and groups engaged in formal and informal sectors.

### **Phase – 3: Recommendations**

Our interventions focus on various measures/potential ideas/projects required to be pursued for Development and Employment Generation. These interventions focus on the following:

- What is the enabling environment to be created to further development and employment generation?
- What are the interventions to enhance employment generation/job creation?
- What are the potential opportunities that can be tapped thereof and structured for private sector investment and NSDC interventions?

The report derives content for analyses from both, primary survey and secondary sources.

- The surveys were undertaken by visiting several districts of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura and meeting key stakeholders identified with the help of State/District Government Departments of Labour, Planning or Industries and using internal research and databases.
- Significant secondary research was also carried out in order to validate the findings of primary survey.

### **3. Study Limitations**

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While care has been taken to ensure correctness of information, the report outcomes for entire North East are affected by the following circumstances:

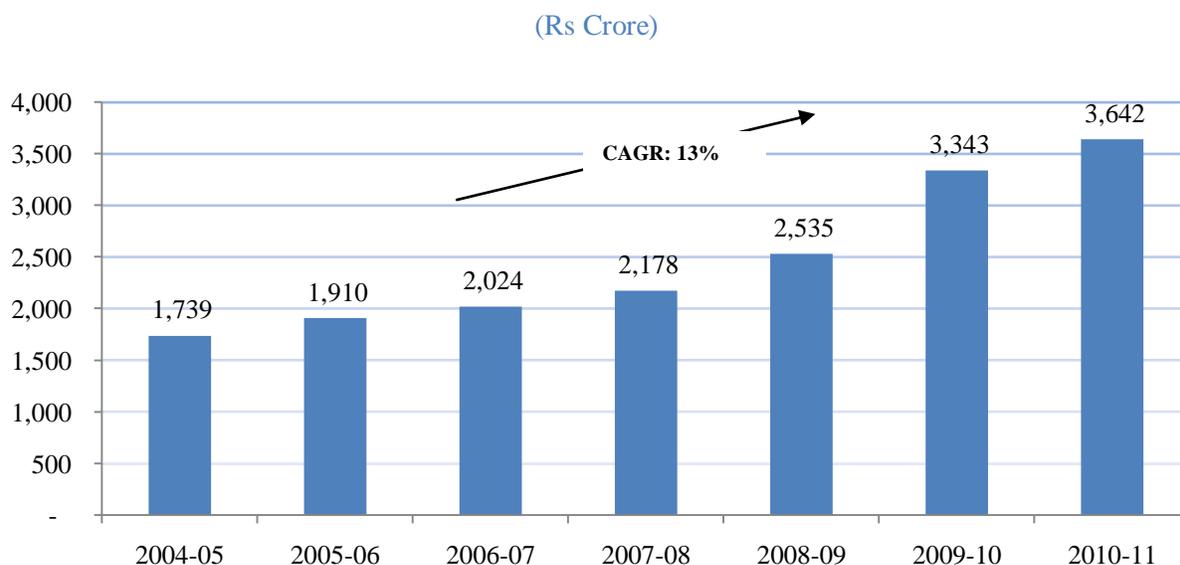
- While the field survey has been conducted keeping in mind maximum coverage, the survey has been constrained by factors such as - weather: a major part of the survey was conducted in the rainy season with landslides and flooding; availability of transportation; proper road connectivity; availability of persons to interview at select locations and offices; lack of documented and latest information; and inaccessible distances from within a State.
- While some states had updated statistics, for others approximations have been made because of dated or non-existent data, particularly, for industries and institutions that have come up in recent years.
- Approximations include use of past growth rates for projections, regional average, national average, productivity growth, benchmarks with other states and others.

**PART – II (a): Diagnostic Analysis of Sikkim**

## 4.1 Macro Economic Overview

The GSDP of Sikkim is about Rs 3,642 crore, at constant prices. In the six years to 2010-11, the GSDP of Sikkim has grown at a CAGR of 13 per cent, from Rs 1,739 crore in 2004-05. The Sikkim GSDP growth rate is higher than that of India GSDP growth rate (8.6 per cent).

FIGURE 1: GSDP GROWTH OF SIKKIM

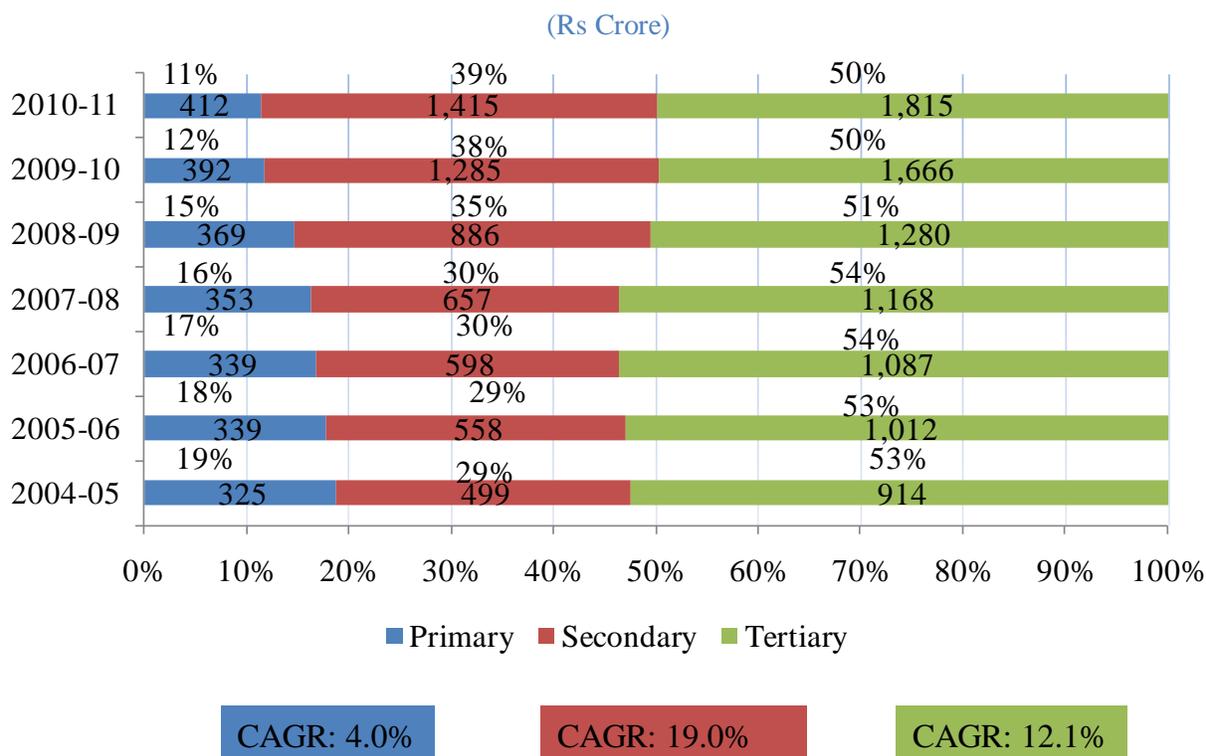


Source: Central Statistical Organisation; IMAcS Analysis

Overall, the secondary sector share has grown over the years, while the primary sector share has decreased between 2004-05 and 2010-2011. The secondary and tertiary sectors have had a rapid growth as compared to the primary sector. While the tertiary sector has doubled during the period 2004-2011, the secondary sector has almost tripled during this period.

The services sector, particularly, hotels, trade and restaurants, public administration and storage are the key drivers of tertiary share growth. In the coming years, other services such as education and healthcare are expected to play a key role in this sector. The increased role of construction has driven up the secondary sector.

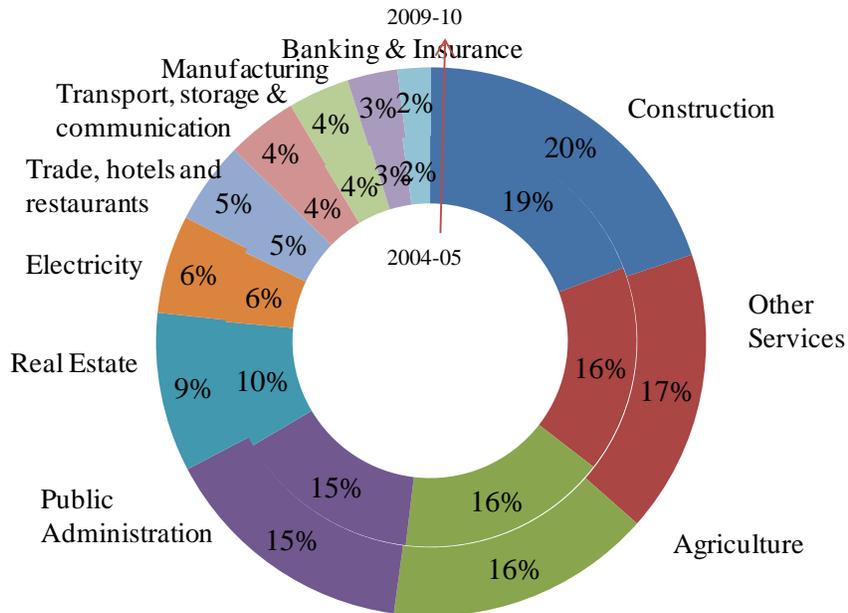
FIGURE 2: GSDP DISTRIBUTION ACROSS PRIMARY, SECONDARY & TERTIARY SECTORS



Source: Central Statistical Organisation; IMAcS Analysis

In value terms, agriculture, construction, public administration, real estate and other services are the key drivers of the economy. Construction dominates the secondary sector. Between 2004-05 and 2010-2011, the percentage distribution of GSDP of the primary sector has decreased.

FIGURE 3: CHANGE IN GSDP SHARES ACROSS ECONOMIC ACTIVITIES



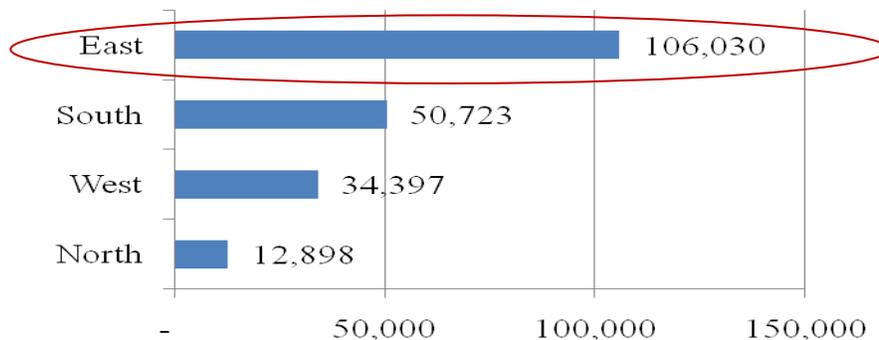
Source: Central Statistical Organisation; IMaCS Analysis

^Other services include education, medical and health, religious and other community services, legal services and entertainment service

Sikkim has four districts, viz., East, West, North and South. The East district, which has the state capital Gangtok, contributes around 52 per cent to the GSDP.

FIGURE 4: GROSS DISTRICT DOMESTIC PRODUCT

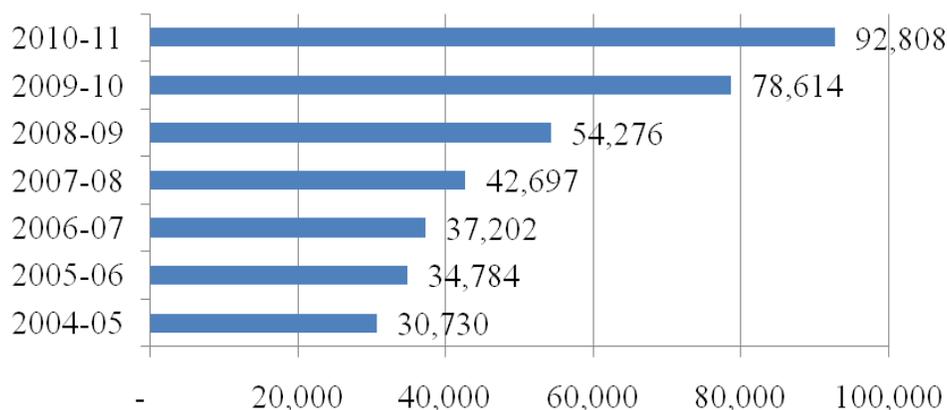
2007-08 (Rs Lakh)



Source: IMaCS Analysis, Sikkim A Statistical Profile-2006-07

Sikkim's per capita income is higher than the regional (Rs 46,359) and national average (Rs 54,835).

FIGURE 5: PER CAPITA INCOME FOR SIKKIM

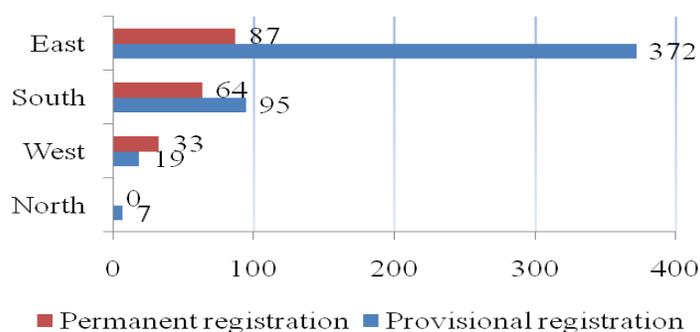


#### 4.2 Industrial Activity Overview

Sikkim has 677 micro and small units registered. About 68 per cent units were registered in East district, while least registrations at 1 per cent were in the North district. There are a few public sector undertakings (PSU), mainly engaged in fruit preservation, tea, watches and precision industries. The Sikkim Industrial Development & Investment Corporation Limited (SIDICO) is engaged in promoting, financing and developing the tiny and small scale industries (SSI) sector in the state.

FIGURE 6 DISTRICT-WISE UNITS REGISTERED

(Up to November 2007)



Sources: Sikkim A Statistical Profile 2006-07; MSME Sikkim; IMaCS Analysis

Sikkim has about 19,000 units operating in the informal sector. They provide employment to 68,000 persons. A majority of the units are involved in activities related to retail trade.

The thrust areas identified under the Sikkim Industrial Promotion and Incentive Act, 2000 for providing local employment are as follows:

- Ecotourism
- Handicrafts and handlooms
- Honey
- Biotechnology
- Plantation crops
- Pharmaceuticals
- Horticulture and floriculture
- Wool and silk
- Food processing
- Precision engineering
- Electronics
- Medicinal and aromatic herbs

### **4.3 Demography and Employment Overview**

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North District is the biggest district in Sikkim in terms of area, occupying 60 per cent of the State's area. It has the smallest share in State's population at just 7 per cent. Majority of the State's population is concentrated in rural areas. East district is the most urbanized. The literacy rate of Sikkim is 82 per cent which is higher than India's literacy rate of 74 per cent.

TABLE 1: DEMOGRAPHY OF SIKKIM

District	Area share	Population density (per sq. km.)*	Rural to Total population	Population*	Population share*	Male to Female population*	Percentage of tribal population *	Villages	No. of towns	Literacy Rate*
North	60%	10	97%	43,354	7%	1.3	53%	53	1	77%
West	16%	117	99%	136,299	22%	1.1	19%	121	2	79%
South	11%	196	97%	146,742	24%	1.1	16%	145	2	82%
East	13%	295	78%	281,293	46%	1.1	18%	134	4	85%
<b>Sikkim</b>	<b>100%</b>	<b>86</b>	<b>89%</b>	<b>607,688</b>	<b>100%</b>	<b>1.1</b>	<b>21%</b>	<b>453</b>	<b>9</b>	<b>82%</b>

Sources: Census 2011; Census 2001; IMaCS Analysis

Over 59 per cent of Sikkim's population falls in the working age range of 15-59 years. About 48 per cent of Sikkim's working population is concentrated in East Sikkim district alone, followed by 23 per cent in South district, 21 per cent in West district and the remaining 8 per cent in North Sikkim district.

TABLE 2: DISTRICT-WISE DEMOGRAPHY OF SIKKIM

District/ Age group	0-14	15-59	60+	Others*	Total	0-14	15-59	60+	Others*
North	14,104	24,387	1,658	881	41,030	34.4%	59.4%	4.0%	2.1%
East	78,692	153,257	12,505	586	245,040	32.1%	62.5%	5.1%	0.2%
South	48,739	75,000	7,641	145	131,525	37.1%	57.0%	5.8%	0.1%
West	47,372	68,322	7,236	326	123,256	38.4%	55.4%	5.9%	0.3%
<b>Sikkim</b>	<b>188,907</b>	<b>320,966</b>	<b>29,040</b>	<b>1,938</b>	<b>540,851</b>	<b>34.9%</b>	<b>59.3%</b>	<b>5.4%</b>	<b>0.4%</b>

Source: Census 2001

\*Others: non-respondents

#### 4.4 Infrastructure Overview

Roads are the key infrastructure connecting Sikkim with the other parts of the country. Railway and airport construction are underway. Sikkim has a total road length of 2,873 km with a road density of 41 km per 100 sq km. The state Public Works Department (PWD) and the Border Roads Organisation (BRO) maintain the roads. Rail connectivity is being created between Rangpo in Sikkim and Siliguri in West Bengal. Airport construction is underway in Pakyong. Helicopter services are available from Bagdogra (West Bengal) to Gangtok.

TABLE 3: ROAD-TYPES IN SIKKIM

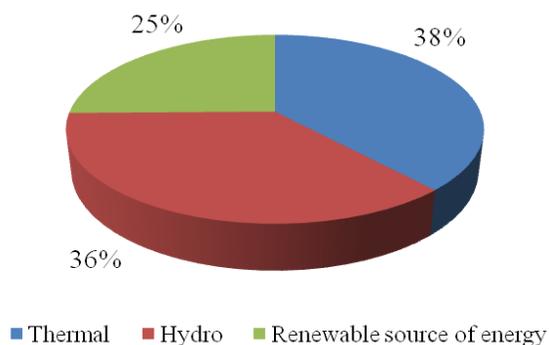
Road type	Length (km)	Road type	Length (km)
National Highways (NH)	40	Major District roads	722
North Sikkim Highway (BRO)	67	Other District Roads	1,073
State Highways	184	Border roads	804

Sources: Economic Survey of Sikkim 2006-07; IMaCS Analysis

Sikkim has a hydroelectric potential of 8,000 MW. To tap this potential, the State Government has set up Sikkim Power Development Corporation Limited (SPDC). Sikkim has approved 29 hydroelectric power plants (HEP) for development by independent power producers (IPP), which are at various stages of construction and would have an installed capacity of 5,352.7 MW when complete. About 24 HEPs are being set up under public private partnership (PPP) mode.

FIGURE 7: FUEL-WISE TOTALS INSTALLED CAPACITY

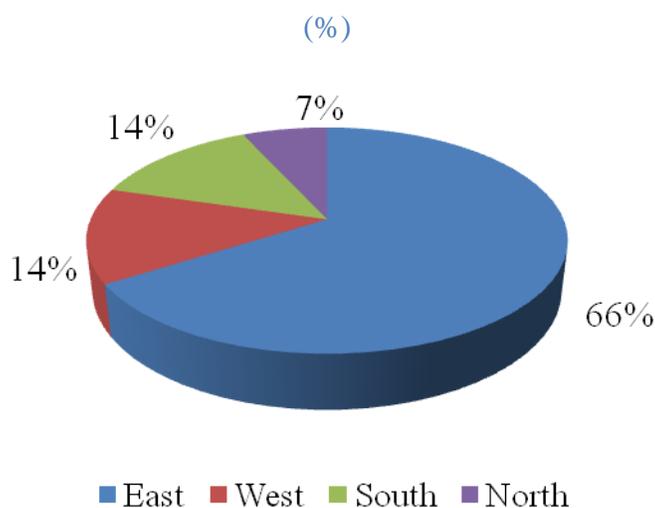
(%, As of August 2011)



Sources: Central Electricity Authority; Economic Survey of Sikkim 2006-07; IMaCS Analysis

The telecommunications network in the state was very limited prior to the setting up of the Sikkim Telecom Department under the West Bengal Circle of Bharat Sanchar Nigam Limited (BSNL) in 2000. As of 2010, there were 117,886 telephone connections in Sikkim. Many of these have been supplied under the PCO-booth scheme to increase self-employment opportunities in the state. There were 14,700 mobile connections in 2004, which increased to 25,000 in 2005. The Department has set up village public telephones (VPT) in 374 of the 427 revenue villages.

**FIGURE 8: DISTRIBUTION OF MOBILE CONNECTIONS IN SIKKIM**



*Sources: Economic Survey of Sikkim 2006-07; IMaCS Analysis*

As of 2008-09, Sikkim had 1,082 schools. Of these, 765 were government schools and the remaining were private schools. A total of 140,630 students were enrolled in these schools. For higher education, the State has one Central and four private universities.

There are three state-run polytechnics – two in Gangtok in East Sikkim and one in Namchi, in South Sikkim which offer diploma courses in various engineering branches. There are also three Industrial Training Institutes (ITIs) also in Rangpo (East district), Namchi (South district) and Gyalshing (West district).

TABLE 4: EDUCATION INFRASTRUCTURE

Category	Government Schools		Private Schools	Total No. of Schools	No. of students
	State	Central			
Lower Primary	146	1	49	196	19,674
Primary	332	-	181	513	78,585
Upper Primary	144	-	59	203	27,549
Secondary	99	1	17	117	9,147
Senior Secondary	44	3	6	53	5,675
<b>Total</b>	<b>765</b>	<b>5</b>	<b>312</b>	<b>1,082</b>	<b>140,630</b>

As of 2006-07, Sikkim had two hospitals, four CHCs, 24 PHCs and 147 PHSCs. Number of beds was at 1,520.

TABLE 5: HEALTH INFRASTRUCTURE

Name of the institution / centre	No. of centres
Central Referral Hospital	1
STNM Hospital, Gangtok	1
Community Health Centre (CHC)	4
Primary Health Centre (PHC)	24
Primary Health Sub-Centre (PHSC)	147
Tuberculosis Centre	5
Mental Hospital	1
AIDS Cell	1
Post Mortem Centre	5
Blood Bank	3
Birth & Death Registration Centre	32

(2007)

Sources: Sikkim A Statistical Profile 2006-07; IMAcS Analysis

In terms of key health indicators, Sikkim lags the national value for infant mortality rate.

TABLE 6: KEY HEALTH INDICATORS

Indicator	Crude Death Rate	Crude Birth rate	Infant Mortality rate
India	7.3	22.5	34
Sikkim	5.7	18.1	50

#### 4.5 Key Findings from the Diagnostic Analysis

##### Macro-economic:

Sikkim's GSDP has increased at a CAGR of 13 per cent in the last six years. This is mainly driven by the increasing construction activity in the State. Tertiary sector has the biggest share in GSDP at 50 per cent, due to a high share of public administration. Almost half of economic activity in the State is concentrated in East Sikkim district, which is home to the State capital. Most of the other districts have minimal economic activity.

##### Industrial Activity:

There is no large or medium scale industry in the State due to small size of the State, limited infrastructure, raw materials and accessibility. Small scale industry has grown in the last ten years. Over half of these units are concentrated in the East Sikkim district. Informal sector plays a key role in the economy, providing employment to around 60,000 people. Most of these are employed in retail trade and agricultural activities. Most of the upcoming industrial or economic activities in the State will be based on its factor endowments, climatic conditions and aspirations of the youth. Sikkim is opening up its economy for employment opportunities, especially, in the hospitality and pharmaceuticals sectors.

##### Demography:

The population distribution in Sikkim is skewed, with the North district occupying 60 per cent of the area but housing only 7 per cent of the population. However, the State has the ability to reap its demographic dividend due to high share of working age population and young population (0-14 years) will be joining the working age population in a few years. Close to 60 per cent of the State population is in the working

age group, and around 35 per cent is in the age-group of 0-14 years. In addition, the State has high literacy rate of about 82 per cent. These factors together make available a huge pool of literate human resources, which can be tapped over the next few years.

**Government Policy:**

The Sikkim Industrial Promotion and Incentive Act, 2000, has identified thrust sectors such as precision engineering and IT, food and fruit processing, horticulture, floriculture, tourism, honey and biotechnology. There is also a Directorate of Capacity Building setup which aims to skill the youth, district-wise.

**Infrastructure:**

Infrastructure availability is poor. However, construction activity has picked up in the last few years and the Government is focusing on development of roads, railway, hydroelectric power plants and telecom infrastructure. The biggest challenge, however, is the earthquake prone characteristic of Sikkim which hampers all infrastructure development activities. Social infrastructure including health and education is mostly concentrated in Gangtok. Institutes in other districts are not up to the mark. Students prefer to move out for education either to Gangtok or outside the State. Health infrastructure is also not of very good quality. For vocational training, the State has three polytechnics and three ITIs. The courses and trades offered are in line with domestic demand. However, the quality of infrastructure and course material is not up to contemporary standards.

## 4.6 SWOT Analysis of Sikkim

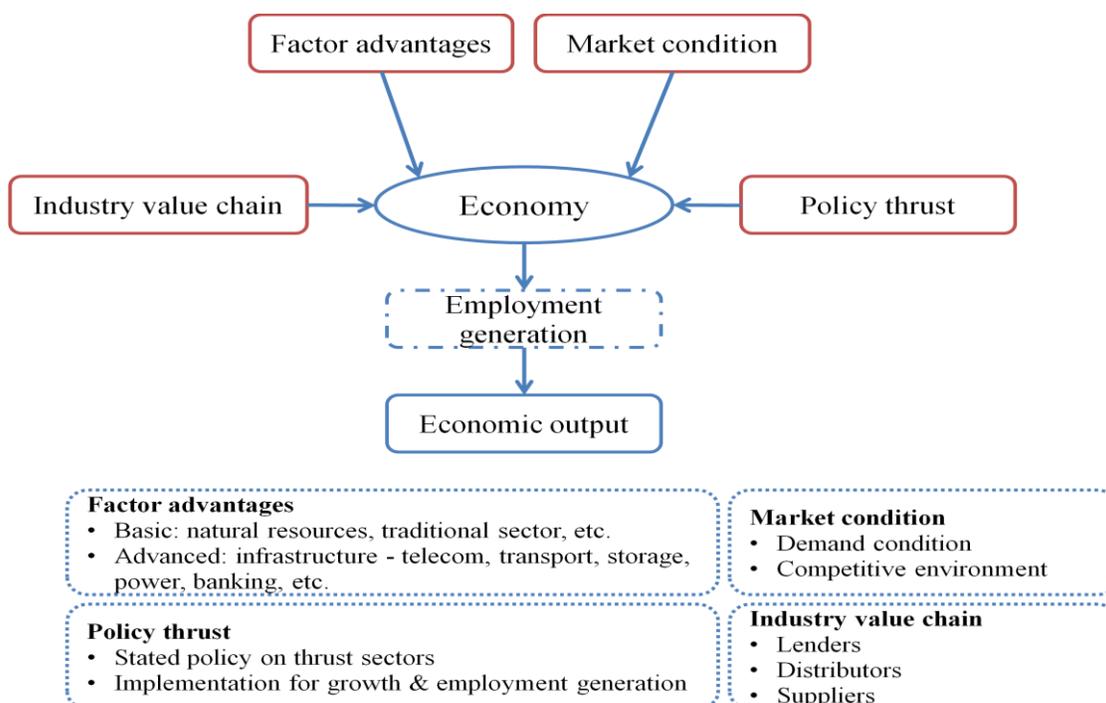


**PART – II (b): Identification of growth sectors**

## 5.1 Criteria for selecting growth sectors

- Resident skills that will continue to be a source of employment generation in next 10 years – skill development required for enhancing competitiveness.
- Sectors with policy support from Central and State Government for expansion, training and marketing.
- Product is unique to the region or occurs abundantly because of factor advantages, but has just started to be exploited as an economic activity.
- Infrastructure investment required to support industrial and economic growth; investment which has started or is planned.
- Common service trades such as electricians, plumbers and repair mechanics – those which require service quality enhancement.

## 5.2 Framework for identifying growth engines



The above framework has been used to identify potential sectors where economic activities will create employment between 2011 and 2021. The growth engines for a state's economy are driven by the factor advantages within the state, market conditions, industry value chain available and Government policy support. These factors lead to growth in economic output which in turn determines the annual incremental employment opportunities within the state.

### 5.3 Identified sectors for livelihood opportunities

The following livelihood and domestic opportunities have identified in Sikkim based on factor advantages.

TABLE 7: DOMESTIC DEMAND IN SIKKIM

Sector	Factor endowments	Policy Thrust	Market Potential	Historical Presence	Availability and quality of training Centre	Time taken to train*	Employment opportunities**
<b>Livelihood Opportunities</b>							
Agriculture	√	√	√	√	×	Low	-
Fishery	√	×	√	√	×	Low	-
Animal Husbandry	√	√	√	√	×	Low	-
<b>Sectors for domestic demand</b>							
Sericulture	√	√	√	√	√	Medium	High
Handicrafts	√	√	√	√	√	Medium	Medium
Horticulture	√	√	√	√	×	High	High
Tea	√	√	√	√	√	High	High
Food Processing	√	√	√	×	×	Low	High
Hospitality	√	√	√	√	√	Medium	Low
IT/ITES	×	√	√	×	×	High	Medium
Forest based, bamboo	√	√	√	√	×	Low	High
Oil, gas and plastic	√	√	√	√	×	High	High
Construction	√	√	√	√	×	Low to Medium	High
Healthcare	√	√	√	×	×	Medium to High	Low
Motor Repair	√	×	√	×	×	Low	Low to High

\* Low: Up to one year; Medium: One to two years; High: More than two years. \*\* Low: Incremental employment potential of 0 to 1,500 persons; Medium: 1500 to 3,000 persons; High: More than 3,000 persons

Source: IMaCS Analysis

## 5.4 Identified sectors for migration

Migration opportunities exist for the excess supply of human resources. Some of the vocational training areas identified for the purpose of migration include beauty and wellness, hospitality, IT/ITeS, Retail Services, Music, Sports, Fashion design, Flight Attendants and Ground Staff and Healthcare.

TABLE 8: MIGRATION OPPORTUNITIES

Sector	Natural aptitude	Youth aspiration	Market Potential	Availability and quality of training Centre	Time taken to train*
<b>Sectors for Migration</b>					
Beauty and Wellness	√	√	√	√	Low to Medium
Hospitality	√	√	√	×	Medium to High
IT / ITES	×	√	√	×	Medium to High
Retail Services	√	√	√	×	Low
Music	√	√	√	×	Medium to High
Sports	√	√	√	×	Medium to High
Fashion Designing	√	√	√	×	High
Flight attendants	×	√	√	×	Medium to High
Ground staff at the airports	×	√	√	×	Low to Medium
Healthcare	×	√	√	×	Medium to High
Language Skills	√	√	√	×	Low to Medium
Trainers	×	√	√	×	Medium to High

\* Low: Up to one year; Medium: One to two years; High: More than two years.

Source: IMaCS Analysis

## 5.5 Type of skilling required in identified sectors

The identified sectors require skilling across three categories viz. Speciality, New skills or Skill up gradation.

TABLE 9: TYPE OF SKILLING REQUIRED

Sectors	Specialty skills	New skills	Skill up-gradation
<b><i>Livelihood opportunities</i></b>			
Agriculture			✓
Apiculture		✓	✓
Animal Husbandry		✓	✓
<b><i>Sectors for domestic demand</i></b>			
Handloom and Handicraft	✓	✓	✓
Horticulture		✓	✓
Fruit Processing		✓	✓
Hospitality		✓	
IT/ITES	✓		✓
Forest based products	✓	✓	
Construction	✓		
Pharmaceuticals	✓	✓	✓
Healthcare	✓	✓	✓
Others including education and motor repair	✓	✓	✓

*Specialty skills: technical or specific knowledge base essential*

*New skills: training centres largely non-existent*

*Skill-up-gradation: outdated techniques and knowledge base*

*Source: IMaCS Analysis*

## 5.6 Type of skilling required in sectors identified for migration

As done for the domestic demand, the migration sectors also can be skilled for Speciality, New skilling or Skill up gradation.

TABLE 10: TYPE OF SKILLING REQUIRED

Sectors	Specialty skills	New skills	Skill up-gradation
<b>Sectors for migration</b>			
Beauty and Wellness	✓	✓	✓
Hospitality		✓	✓
IT / ITES	✓		✓
Retail Services		✓	
Music	✓	✓	
Sports		✓	✓
Fashion Designing	✓	✓	✓
Flight attendants		✓	✓
Ground staff at the airports		✓	
Healthcare	✓	✓	✓
Trainers		✓	✓

*Specialty skills: technical or specific knowledge base essential*

*New skills: training centres largely non-existent*

*Skill-up-gradation: outdated techniques and knowledge base*

*Source: IMACS Analysis*

**PART – II (c): District level Analysis of Sikkim**

## 6.1. East Sikkim

East Sikkim is the economic and connectivity hub of Sikkim. It is the house to the state capital Gangtok. A lot industries and educational institutes have mushroomed in East Sikkim district, especially, in Gangtok, Singtam and Tadong.

### 6.1.1 Economy

The GDDP of the East Sikkim district was Rs 106,030 as of 2007-08. This district alone has contributed to roughly 52 per cent of the state's GDP. The per capita DDP was Rs 39,937, making it the highest per capita DDP in Sikkim.

### 6.1.2 Demography

Geographically, East Sikkim occupies the south-east corner of the state with an area of 964 sq km. East Sikkim also shares international borders with China and Bhutan.

According to the Census 2011, East Sikkim has a population of 281,293 and literacy of 85 per cent. People in East Sikkim are mostly of Nepali ethnicity, arriving in search of jobs after the British appropriated the state in the 19th Century. Other ethnicities include the Bhutias, the Tibetans and the Lepchas. Nepali is the predominant language in the region.

### 6.1.3 Infrastructure

Though East Sikkim boasts of the best infrastructure within the state, to put Sikkim on the path to greater economic prosperity, this needs to be ramped up to meet the industry demands.

TABLE 11: SOCIAL INFRASTRUCTURE OF EAST SIKKIM

Facilities	Number of villages
Drinking water facilities	131
Safe drinking water	128
Electricity supply - total	125
Electricity supply - domestic	69
Electricity supply - Agriculture	Nil

Source: Census 2001, IMACS Analysis

East Sikkim has a total of 131 villages of which all of them have safe drinking water. However, low penetration of electricity supply for domestic and agriculture purposes are the key infrastructure related concerns.

The educational infrastructure also needs to be built to provide basic education which can be used as the foundations to skill the future generations and hence reap the demographic dividends.

TABLE 12: EDUCATION INFRASTRUCTURE OF EAST SIKKIM

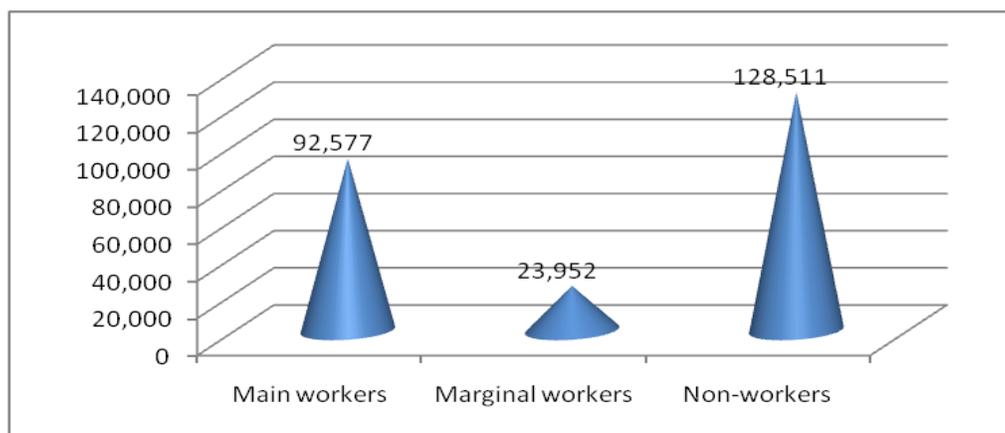
Type of institution	Number of villages
Primary school	112
Middle schools	59
Secondary/Sr Secondary schools	60
College	1

Source: Census 2001, IMaCS Analysis

### 6.1.4 Employment Pattern

East Sikkim is predominantly a rural economy with non-workers at number of 128,511. The main reason for this high a number of is that the infrastructure is not sufficient enough to reap good agricultural produce. Also, there is very less awareness on crops that can be grown beyond the main cropping season.

FIGURE 9: EMPLOYMENT PATTERN IN EAST SIKKIM



Source: Census 2001, IMaCS Analysis

### 6.1.5 Potential sectors in district

Based on the existing socio-economic profile of the district and availability of resources, IMaCS has identified the following sectors skilling opportunities.

#### **Pharmaceuticals:**

- East Sikkim is home a number of pharmaceutical companies
- Locally also, the youth are interested in pursuing a career in pharmaceuticals

#### **Fruit processing:**

- Gangtok is a well established market for selling the unique Sikkim produce
- Many exotic fruits grow in East Sikkim

#### **Floriculture:**

- Several pilot projects have been undertaken to develop the traditional floriculture to a commercial activity.
- Local interest also prevails to acquire new skills.

#### **IT/ITeS:**

- Youth are interested in acquiring IT skills
- Also, many of the young generation who have migrated out are open to coming back if there are more local opportunities in IT

#### **Casino tourism:**

- Gangtok attracts tourists who are interested in Casino Tourism
- Mainly, people look for a getaway from routine tourist activities and Gangtok, with its different gambling laws, intends to use this opportunity to position itself differently in the tourism arena.

## 6.2 West Sikkim

West Sikkim is a district that is fast developing into a tourist hub because of the presence of religious monasteries and beautiful mountains.

### 6.2.1 Economy

The GDDP of the West Sikkim district was Rs 34,397 as of 2007-08. This district alone contributes to roughly 17 per cent of the state's GDP. The per capita DDP is Rs 25,757. This is the third highest per capita DDP in the state.

### 6.2.2 Demography

West Sikkim has an area of 1,166 sq km. West Sikkim shares borders with Nepal. According to the Census 2011, West Sikkim district has a population of 136,299 and literacy of 79 per cent. The people are mainly of Nepali descent. Other ethnic groups include the Lepcha and Bhutia communities. Nepali is the most widely spoken language in the district.

### 6.2.3 Infrastructure

West Sikkim is the district that has almost uninterrupted power supply for domestic purposes. But, this infrastructure also has to be improved to exploit the tourism potential of the district.

TABLE 13: SOCIAL INFRASTRUCTURE OF WEST SIKKIM

Facilities	Number of villages
Drinking water facilities	121
Safe Drinking water	121
Electricity supply - total	115
Electricity supply - domestic	115
Electricity supply - Agriculture	-

Source: Census 2001, IMAcS Analysis

The educational infrastructure also needs to be built to provide basic education which can be used as the foundations to skill the future generations and hence reap the demographic dividends.

**TABLE 14: EDUCATION INFRASTRUCTURE OF WEST SIKKIM**

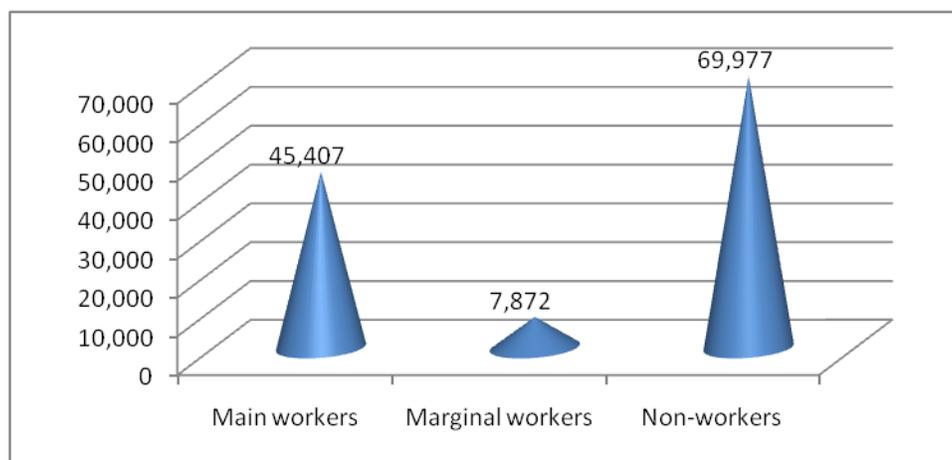
Type of institution	No of villages.
Primary school	107
Middle schools	60
Secondary/Sr Secondary schools	33
College	-

*Source: Census 2001, IMaCS Analysis*

### 6.2.4 Employment Pattern

The economy is mainly agrarian, despite most of the land being unfit for cultivation owing to the precipitous and rocky slopes. Awareness needs to be built to reduce the number of non workers with modern methods of agriculture and horticultural crops.

**FIGURE 10: EMPLOYMENT PATTERN IN WEST SIKKIM**



*Source: Census 2001, IMaCS Analysis*

### 6.2.5 Potential sectors in district

Based on the existing socio-economic profile of the district and availability of resources, IMaCS has identified the following sectors for skilling opportunities.

#### **Fruit processing:**

- Pelling can be developed into a market for selling the unique Sikkim produce
- Many exotic fruits grow in West Sikkim

#### **Religious tourism:**

- West Sikkim is home to a number of monasteries which have unique myth and legends that can be shared.
- The local tour guides also would benefit from the skilling offered.

## 6.3 North Sikkim

This is the largest district in Sikkim. Also, in terms of the climatic and forest zones, North Sikkim has variation from alpine to tundra. The flip side is that this is the district that is most prone to landslides.

### 6.3.1 Economy

The GDDP of the North Sikkim district was Rs 12,898 as of 2007-08. This district had the lowest contribution to the state DDP. This is mainly due to the inhospitable land that renders it difficult to pursue steady economic activity. The per capita DDP is Rs 29,015. North Sikkim is a part of the 250 most backward districts in India.

### 6.3.2 Demography

The North Sikkim district shares a sensitive border with China is heavily patrolled by the Indian army. However, in view of exquisite scenic beauty, a large number of tourists have started visiting the region overcoming all sorts of hardship. Some of these areas require an inner line permit.

North Sikkim District has an area of 4,226 sq km and the headquarters is Mangan. According to the Census 2011, North Sikkim district has a population of 43,354 and literacy of 77 per cent. The people are mainly of Nepali descent. Other ethnic groups include the Lepcha and Bhutia communities

### 6.3.3 Infrastructure

North Sikkim is the district that has the poorest infrastructure in Sikkim. This is mainly due to the tough landscape and the difficulty in penetrating the interior villages to make the infrastructure available for all.

TABLE 15: SOCIAL INFRASTRUCTURE OF NORTH SIKKIM

Facilities	Number of villages
Drinking water facilities	53
Safe Drinking water	50
Electricity (Power Supply)	46
Electricity (domestic)	46
Electricity (Agriculture)	-

Source: Census 2001, IMaCS Analysis

The educational infrastructure also needs to be built to provide basic education which can be used as the foundations to skill the future generations and hence reap the demographic dividends.

TABLE 16: EDUCATION INFRASTRUCTURE OF NORTH SIKKIM

Type of institution	Number of villages
Primary school	42
Middle schools	20
Secondary/Sr Secondary schools	14
College	-

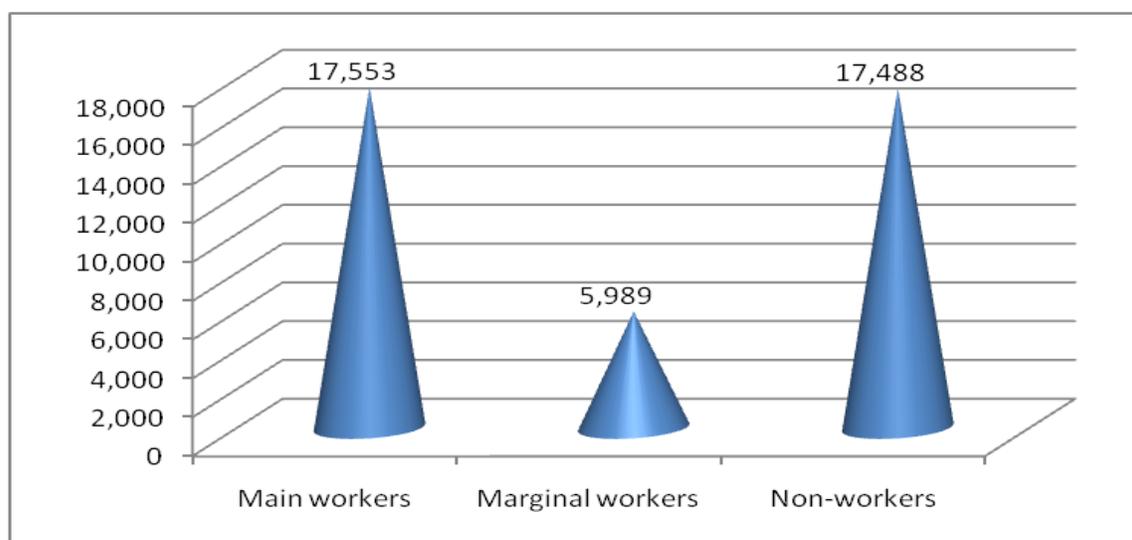
Source: Census 2001, IMaCS Analysis

### 6.3.4 Employment Pattern

As discussed prior, the harsh landscapes prone heavily to landslides and the proximity to China which makes setting up of big industries difficult have crippled the opportunities for employment in sectors other than agriculture.

The number of non workers is comparable to the main workers and there should be infrastructure growth that will lead to enhanced opportunities.

FIGURE 11: EMPLOYMENT PATTERN IN NORTH SIKKIM



Source: Census 2001, IMaCS Analysis

### 6.3.5 Potential sectors in district

Based on the existing socio-economic profile of the district and availability of resources, IMaCS has identified the following sectors for skilling opportunities.

#### Power

- North Sikkim has significant hydroelectric potential
- The fact that hydro projects need to hire the local population when they are in construction phase opens up a huge opportunity.

## Adventure tourism

- Mountaineering and adventure tourism has significant potential for development in North Sikkim with its mountains and slopes.

## 6.4 South Sikkim

South Sikkim is known for the sprawling Temi Tea gardens and it enjoys a relatively moderate climate.

### 6.4.1 Economy

The GDDP of the South Sikkim district was Rs 50,723 as of 2007-08. This is the second highest DDP. The per capita DDP was Rs 35,594.

### 6.4.2 Demography

The South Sikkim district is bounded by the East and West Districts and has a relatively flat terrain making it a potential district in Sikkim for economic development. It has an area of 750 sq km and the head quarter is Namchi. According to the Census 2011, South Sikkim district has a population of 146,742 and literacy of 82 per cent. The people are mainly of Nepali descent. Other ethnic groups include the Lepcha and Bhutia communities.

### 6.4.3 Infrastructure

South Sikkim is the district that holds significant developmental opportunities due to the level land and proximity to Gangtok. The landslides are also less here.

TABLE 17: SOCIAL INFRASTRUCTURE OF SOUTH SIKKIM

Facilities	Number of villages
Drinking water facilities	145
Safe Drinking water	145

Facilities	Number of villages
Electricity (Power Supply)	142
Electricity (domestic)	134
Electricity (Agriculture)	-

Source: Census 2001, IMaCS Analysis

The educational infrastructure needs to be built to provide basic education which can be used as the foundations to skill the future generations and hence reap the demographic dividends.

TABLE 18: EDUCATION INFRASTRUCTURE OF SOUTH SIKKIM

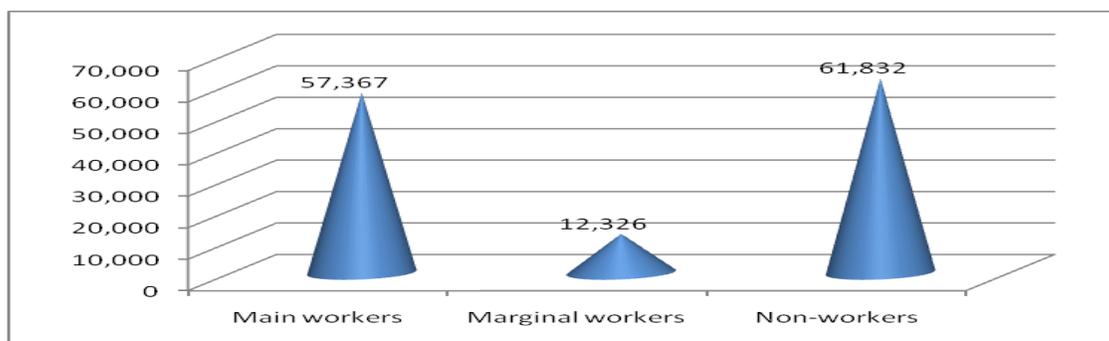
Type of institution	No of villages.
Primary school	131
Middle schools	72
Secondary/Sr Secondary schools	37
College	2

Source: Census 2001, IMaCS Analysis

#### 6.4.4 Employment Pattern

South Sikkim has the second highest number of main workers (after East Sikkim) due to the land being more suited for agriculture and the Temi Tea estate. Awareness creation is necessary for developing South Sikkim’s horticultural potential.

FIGURE 12: EMPLOYMENT PATTERN IN SOUTH SIKKIM



Source: Census 2001, IMaCS Analysis

### **6.4.5 Potential sectors in district**

Based on the existing socio-economic profile of the district and availability of resources, IMaCS has identified the following sectors for skilling opportunities.

#### **Tea:**

- The Temi Tea estate offers employment to locals but lack people to maintain the factory equipment and tea tasters.

#### **Fruit processing:**

- South Sikkim has a climate suitable to grow a wide variety of fruits.

**PART – II (d): Skill Gap Analysis**

## 7.1 Tourism

Sikkim has a competitive advantage in tourism, as it has beautiful landscape, with streams, waterfalls and lakes. It has diverse flora and fauna with rich culture, tradition, and warm hospitable people. Sikkim is also one of the 26 biodiversity hot spots in the world. It attracted over 7.2 lakh tourists in 2010. Over 97 per cent of these were domestic tourists, while the remaining were foreign tourists. Sikkim has taken up aggressive marketing strategy in India and abroad to promote Sikkim as a brand name and the "Ultimate Tourist Destination". It is currently in the process of obtaining a brand name for Sikkim Tourism. As shown by the figures below, the number of tourist arrival into Sikkim is growing. Sikkim's attractions are manifold, having not only scenic beauty but also scope for adventure tourism, flower shows, casino tourism, hot springs and village tourism.

FIGURE 13: DOMESTIC TOURIST ARRIVAL IN SIKKIM

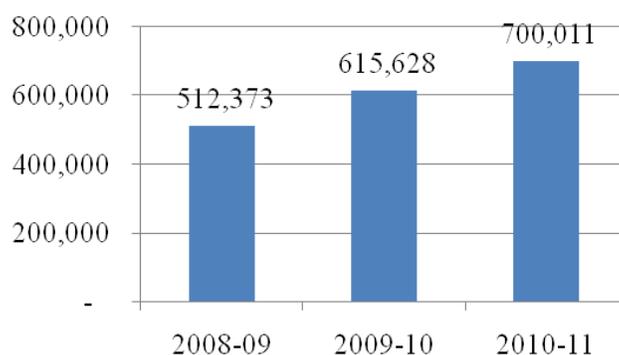
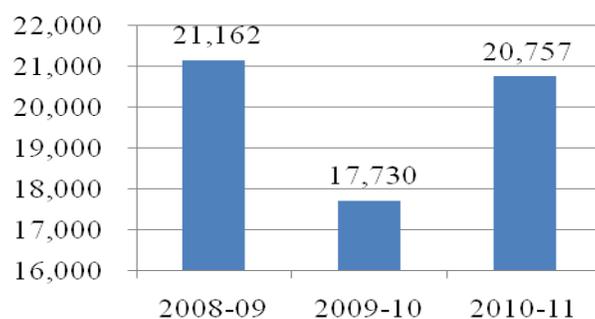


FIGURE 14: FOREIGN TOURIST ARRIVAL IN SIKKIM



Source: Tourism Department, Sikkim

## 7.1(a) Skill mapping and gap analysis: Tourism sector

Entity	Role	Expected competencies	Skill gaps
<b>Tour operators / travel guides and logistic providers</b>	<ul style="list-style-type: none"> <li>Ability to create attractive local tourist package</li> <li>Ability to provide uninterrupted logistics support</li> </ul>	<ul style="list-style-type: none"> <li>Market understanding</li> <li>Ability to brand</li> <li>Event management</li> <li>Route planning and optimisation</li> <li>Excellent sales and marketing</li> <li>Ability to develop attractive pricing strategy</li> <li>Ability to liaison with airline, hotels and local community</li> <li>Ability to manage tourist expectations</li> <li>Customer Relationship Management</li> <li>Computer skills; soft skills</li> <li>Understanding of local and English speaking skills</li> </ul>	<ul style="list-style-type: none"> <li>Tour operations are mainly handled by people from West Bengal. Very few Sikkimese locals are involved.</li> <li>Lack of networking skills.</li> <li>Lack of marketing skills.</li> <li>Dependence on middle men</li> <li>Lack of knowledge about revenue sharing</li> </ul>

Entity	Role	Expected competencies	Skill gaps
Hotels	<ul style="list-style-type: none"> <li>Ability to provide customer service</li> <li>Ability to perform multi-functions</li> </ul>	<ul style="list-style-type: none"> <li>Understanding of local language and English speaking skills</li> <li>Customer relationship management</li> <li>Excellent trouble shooting skills</li> <li>Understanding of cultural differences</li> <li>Understanding of hotel functions, including procurement of raw material, cooking etc.</li> <li>Computer skills</li> <li>Ability to maintain financial records</li> <li>Ability to maintain business etiquette</li> </ul>	<ul style="list-style-type: none"> <li>Most of the hotels are run by people from West Bengal. Only the land is of the Sikkimese locals, which is given on lease</li> <li>While three-four big hotels are able to get skilled people, most of the other hotels lack all basic skills, like English speaking, customer relationship, trouble shooting, computer skills etc.</li> </ul>

Sources: IMACS Survey and Analysis

## 7.2 Pharmaceuticals

Sikkim has a stated goal to emerge as a hub for pharmaceutical companies. By early 2010, it had already attracted pharmaceuticals investment of over Rs 2,500 crore. Key pharma players such as Sun Pharma, Cipla, Zydus Cadila, Unichem, Alembic, IPCA, Golden Cross, Torrent Pharma and Intas have already set up bases in Sikkim. The surge has happened due to the tax incentives provided under the NEIIP 2007 along with additional incentives provided by the Sikkim Government. Key incentives include the following:

- Ten year income tax holiday
- 100% excise duty exemption on finished products manufactured there
- Capital subsidy of 30% on the investment in plant & machinery
- Interest subsidy at 3% on working capital loan
- Reimbursement of 100% insurance premium

- Freight subsidy offered by the State Government
- Abundant land, cheap labour and power

### 7.2(a) Skill mapping and gap analysis: Pharmaceuticals

Entity	Role	Expected competencies	Skill gaps
<b>Helpers and operators</b>	Handling & moving of raw material and finished product and machine operation and maintenance	<ul style="list-style-type: none"> <li>• Ability to read and write</li> <li>• Strict adherence to quality standards such as wearing of masks, gloves</li> <li>• Observation skills such as identification of pilferage in stores, leakage in capsules, broken tablets etc.</li> <li>• Ability to work in teams, personal hygiene and punctuality</li> <li>• Strong technical knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Absenteeism</li> <li>• High attrition</li> <li>• Lags in punctuality</li> <li>• Inability to handle machinery</li> <li>• Inability to do maintenance works</li> <li>• Lack technical knowledge. Only understand theory. Practical application is weak</li> </ul>

Entity	Role	Expected competencies	Skill gaps
<b>Line Supervisors &amp; Plant Engineers</b>	In-charge of production, quality, purchase and HR	<ul style="list-style-type: none"> <li>• Technical knowledge about products (chemical compounds and their properties) and processes (temperature requirements etc.)</li> <li>• Attitude towards learning and skill enhancement</li> <li>• Mentoring and training of operators</li> <li>• Adequate communication skills, ability to manage teams and exhibit leadership</li> <li>• Understanding of technological advances in machinery and manufacturing</li> <li>• Ability to comply with standards and specifications</li> </ul>	<ul style="list-style-type: none"> <li>• Most of the people at managerial / supervisory levels are brought from outside Sikkim, as the locals are reported to lack most of these skills required.</li> </ul>

*Sources:IMaCS Survey and Analysis*

### 7.3 Hydropower

Thanks to the hydro resources, Sikkim is estimated to have a hydro potential of over 8,000 MW. In order to harness this potential, the Government has constituted Sikkim Power Development Corporation to implement the hydro-power projects in the State. The State has aggressively promoted its hydro power potential over the last few years. It has already awarded 29 hydro projects, tiny to large, to IPPs, totalling over 5,000 MW. Most of these projects are currently under construction. Most of the projects are being constructed over river Teesta and its tributaries. The major projects are the six cascading projects, from Teesta I to VI, which will provide the bulk of the capacity of over 3,500 MW. Once installed, the State will get 12 per cent free power from all these projects. In addition, the projects will earn revenue of Rs 600 crore for the State.

TABLE 19: STATUS OF HYDROPOWER PROJECTS IN SIKKIM

(August 2011)

Sl. No.	Name of the project	Installed capacity, MW	Developer	Latest status	Sl. No.	Name of the project	Installed capacity, MW	Developer	Latest status
1	Teesta Stage I	320	Himalayan Green Energy Pvt. Ltd.	Yet to start	8	Rongnichu	96	Madhya Bharati Power Corporation	Yet to start
2	Teesta Stage II	320	Him Urja Infra Pvt. Ltd.	Yet to start	9	Sada-Mangder	71	Gati Infrastructures Ltd.	Yet to start
3	Teesta Stage III	1,200	Teesta Urja Limited	Under construction	10	Chuzachen	99	Gati Infrastructures Ltd.	Under construction
4	Teesta Stage IV	520	NHPC Ltd.	Yet to start	11	Bhasmey	52	Gati Infrastructures Ltd.	Under construction
5	Teesta Stage VI	500	Lanco Energy Pvt. Ltd.	Under construction	12	Rangit II	66	Sikkim Hydro Ventures Ltd.	Under construction
6	Lachen	210	NHPC Ltd.	Yet to start	13	Rangit IV	120	Jal Power Corporation Ltd.	Under construction
7	Panan	300	Himagiri Hydro Energy Pvt. Ltd.	Yet to start	14	Dikchu	96	Sneha Kinetic Power Projects Ltd.	Under construction
					15	Jorethang Loop	96	DANS Energy Pvt. Ltd.	Under construction

Sl. No.	Name of the project	Installed capacity, MW	Developer	Latest status	Sl. No.	Name of the project	Installed capacity, MW	Developer	Latest status
16	Lachung	99	Lachung Power Pvt. Ltd.	Yet to start	24	Kalej Khola II	54	Pentacle Power Pvt. Ltd.	Yet to start
17	Bimkyong	99	Teests Power Pvt. Ltd.	Yet to start	25	Rechu	22	Green Lake Power Dev. Ltd.	Yet to start
18	Bop	99	Chungthang Power Pvt. Ltd.	Yet to start	26	Rangit III	60	NHPC Ltd.	Project commissioned
19	Ting Ting	99	T.T. Energy Pvt. Ltd.	Yet to start	27	Rahi Kyong	25	Sikkim Engineering	Only LOI issued
20	Teesta Stage V	510	NHPC Ltd.	Project commissioned	28	Upper Rolep	30	Cosmic Infrapowergen Pvt. Ltd.	Only LOI issued
21	Tashiding	97	Shiga Energy Pvt. Ltd.	Under construction	29	Upper Rolep (Tshangu)	30	Cosmic Infrapowergen Pvt. Ltd.	
22	Lethang	96	KHC Lethang Hydro Project Pvt. Limited	Yet to start	<b>Total</b>		<b>5,623</b>		
23	Kalej Khola I	28	Cosmic Infrapowergen Pvt. Ltd.	Yet to start					

Sources: Sikkim Power Development Corporation

### 7.3(a) Skill mapping and gap analysis: Hydro power

Entity	Role	Expected competencies	Skill gaps
<b>Helpers &amp; Operators</b>	Loading & unloading, digging & filling, concreting & pavement, operating heavy machines	<ul style="list-style-type: none"> <li>Ability to read and write</li> <li>Ability to execute as per directions</li> <li>Understanding of basic equipment and tools</li> <li>Sound comprehension and concentration</li> </ul>	<ul style="list-style-type: none"> <li>Lack discipline at workplace and non-serious about job</li> <li>Lack exposure to basic equipment / machines and their usage</li> <li>Lack multi disciplined</li> </ul>

Entity	Role	Expected competencies	Skill gaps
		<ul style="list-style-type: none"> <li>Punctuality</li> <li>Ability to handle different machines</li> <li>Operating knowledge of heavy earth moving equipment like drillers, dumper, blasters, excavators, mechanised loaders, cranes</li> <li>Designing and developing of basic civil structures and knowledge about shuttering, barbending, concrete mixing processes</li> <li>Adherence to standard operating manuals for safety</li> </ul>	<ul style="list-style-type: none"> <li>skills such as welding, fitting, dumper and excavators</li> <li>Lack of knowledge of people with knowledge about civil processes</li> </ul>
<b>Supervisors &amp; Plant In-charge</b>	Supervising, mentoring, designing, operations, and maintenance	<ul style="list-style-type: none"> <li>Knowledge about latest technology advancement and equipment usage</li> <li>Knowledge about Batching Plant, Chilling Plant and Turbine Operations</li> <li>Understanding of civil designs and structures of reservoirs, dams and other associated infrastructure</li> <li>Cross discipline knowledge in excavation, civil structures and plant operations</li> <li>Ensuring adherence to environmental and safety norms</li> <li>Leadership and people management skills</li> </ul>	<ul style="list-style-type: none"> <li>People at supervisory / plant in-charge and management level are not available in Sikkim. These are brought from outside the State by the power plant developer.</li> </ul>

Sources: IMaCS Survey and Analysis

## 7.4 Horticulture

Given its agro-climatic conditions, Sikkim has vast potential for growing different types of fruits, vegetables, spices and exotic flowers. Currently, most of the horticulture potential remains untapped. However, the State has started taking efforts to exploit its floriculture potential. This is especially true for exotic orchids. The State produces more than 450 species of orchids, which are sold across India. In addition, fruit processing industry also has huge potential. It is currently dominated by State-controlled fruit preservation factory. The State is also aiming at becoming a completely organic State by 2015. The major horticultural produce of Sikkim are as follows:

**TABLE 20: HORTICULTURE PRODUCTION IN SIKKIM**

Crops, as of 2006-07	Area, hectares	Production, tonnes
<b>Fruits</b>	<b>9.0</b>	<b>13.4</b>
Mandarin Orange	5.6	9.3
Passion fruit	1.2	0.2
Other fruits	2.3	3.9
<b>Spices</b>	<b>19.8</b>	<b>40.8</b>
Large cardamom	12.5	2.7
Ginger	6.7	36.0
Turmeric	0.6	2.1
<b>Flowers (lakh Nos.)</b>	<b>0.1</b>	<b>33.8</b>
Cut / Pot flowers	0.1	17.3
Bulbs / plants	0.1	16.5

Source: Sikkim A Statistical Profile 2006-07; IMAcS Analysis

Floriculture also has great potential for development in Sikkim. Sikkim's climate is suitable for growing varieties of orchids as well as flowers such as Lillyium, Anthurium, Carnation, Gerbera, Glaxonia, Gladiolus, Begonia, Ornamental foliage, ferns, roses, rhododendrons etc. Currently, orchids are being commercially exploited. These are sent to West Bengal, Kolkata, Delhi, Mumbai and Bangalore. Export opportunities are also being explored. Rose and anthurium are also beginning to be taken up for commercial production. However, a large part of the potential remains untapped. Most of the floriculture related activities are done on a small cottage based industry.

Entity	Role	Expected competencies	Skill gaps
<b>Grower</b>	To grow flowers with best possible productivity and quality	<ul style="list-style-type: none"> <li>• Knowledge about the growing pattern of flowers</li> <li>• Knowledge of different seasons in which different flowers should be harvested and planted</li> <li>• Knowledge about high quality seeds</li> <li>• Knowledge about pest control, which includes management of weeds, insects / mites, and diseases</li> <li>• Understanding of international standards to ensure best quality and higher production</li> </ul>	<ul style="list-style-type: none"> <li>• Floriculture is a traditional skill in the people of Assam.</li> <li>• Resultantly, the methodology used for growing flowers is also very old. There is limited understanding of new technology.</li> <li>• There is also lack of knowledge about preparing planting materials.</li> </ul>
<b>Marketing agents</b>	Marketing of flowers	<ul style="list-style-type: none"> <li>• Capability to establish market linkages</li> <li>• Understanding of market demand</li> <li>• Understanding of pricing methodology</li> <li>• Capability to strike good bargains with the potential buyers both in domestic and international markets</li> <li>• Ability to ensure timely transportation to prevent it from getting perished and wasted</li> <li>• Soft skills to deal with clients</li> </ul>	<ul style="list-style-type: none"> <li>• Presently, there are no private marketing agents in Sikkim</li> <li>• The industry is government controlled</li> <li>• Floriculture has just been recognised as an industry which can be commercially exploited. Thus, once the industry grows, the growers will need most of the marketing skills</li> </ul>

Sources: IMaCS Survey and Analysis

## 7.5 Fruit Processing

The Government Fruit Preservation Factory (GFPP) was set up in 1956. This was mainly set up to make use of the ample orange crop in the State. Currently, it is engaged in the manufacture of various fruit juices, jams, jellies, marmalades, tinned fruits, squashes, etc. GFPP is a PSU under the Department of Commerce and Industries, Government of Sikkim. The Factory, established at Singtam in East Sikkim, markets its products under the brand name “Sikkim Supreme”. It employs 85 people and has 42 products, which are sold in Sikkim and other parts of the country through SIMFED and TRIFED. Some of the popular products of the factory are orange squash, passion squash, dalle pickles, bamboo shoot pickles, orange marmalades and Khanchen Berry drink. The factory processes fruits such as lemon, mango and pineapple, which are brought from outside the State. Packing material is brought from Bhutan. GFPP has plans to set up a food processing training centre to train people and to encourage local entrepreneurs in this sector.

### 7.5(a) Skill mapping and gap analysis: Fruit Processing

Entity	Role	Expected competencies	Skill gaps
<b>Fruit processing entrepreneur</b>	Processing of fruits and vegetables	<ul style="list-style-type: none"> <li>Ability to visually examine fruits / vegetables and separate rotten fruits / vegetables</li> <li>Ability to differentiate between different quality grades based on size and other normative approaches</li> <li>Ability to appropriately size / dice as well as the ability to make end produce visually appealing</li> <li>Knowledge of latest preservation and processing technologies</li> <li>Ability to adapt to newer storage technologies</li> <li>Sensitisation to quality control</li> <li>Branding knowledge</li> <li>Strong negotiation skills</li> </ul>	<ul style="list-style-type: none"> <li>Presently, there is only one fruit processing factory in Sikkim, which is owned and run by the government.</li> <li>Given the abundance of fruits in the State, there is a potential to train the locals in fruit processing.</li> </ul>

Entity	Role	Expected competencies	Skill gaps
		<ul style="list-style-type: none"> <li>Packing, selling and marketing skills</li> </ul>	

Sources: IMaCS Survey and Analysis

## 7.6 Tea

Temi Tea Estate, located at Temi in South Sikkim is the only tea garden in the State. It is government owned and was set up in 1969. The garden is spread over 437 hectares and employs over 400 workers. It produces 100 MT of tea annually. The tea produced in this garden is pure organic tea certified by the Institute for Market Ecology (IMO) a member group IMO Switzerland. Around 75 per cent of the produce is sent to the auction centre in Kolkata, while 25 per cent is packaged for domestic sale.

There are also Growers' societies such as Sang-Martam Tea Growers' Co-operative Society", which was set up in 1998 with assistance from Temi Tea Estate. Members include small farmers who have merged their land holdings and converted them into a tea plantation. The total land under the cultivation of the society is 75 acres. It has 140 members. Majority of the leaves plucked in this estate are processed at the Temi Tea factory. However, recently, the society has also set up a mini tea processing unit of its own.

### 7.6(a) Skill mapping and gap analysis: Tea sector

Entity	Role	Expected competencies	Skill gaps
<b>Field staff</b>	Plantation, plucking and leaf handling	<ul style="list-style-type: none"> <li>Understanding of plucking and leaf handling</li> <li>Understanding of operating gardening implements</li> <li>Knowledge of maintenance of the tea garden</li> <li>Knowledge of nursery upkeep</li> <li>Knowledge of running motor vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Presently, majority of the tea operations in Sikkim, including plantation and processing are handled by the State owned Temi Tea.</li> <li>The workers are reported to have acquired the skill with on the job training and no skill gaps have been reported.</li> <li>There are no expansion plans, as of now.</li> </ul>

Entity	Role	Expected competencies	Skill gaps
Factory and administration staff	Tea processing and administration	<ul style="list-style-type: none"> <li>• Understanding of sorting and packing</li> <li>• Knowledge of machine maintenance</li> <li>• Managerial abilities</li> <li>• Knowledge of sales and marketing</li> </ul>	<ul style="list-style-type: none"> <li>• Presently, majority of the tea operations in Sikkim, including plantation and processing are handled by the State owned Temi Tea.</li> <li>• The workers are reported to have acquired the skill with on the job training and no skill gaps have been reported.</li> <li>• There are no expansion plans, as of now.</li> </ul>

Sources: IMACS Survey and Analysis

## 7.7 Handlooms and Handicrafts

Sikkim's handloom and handicrafts are very unique to the state as they convey the land's stories and legends via the produce.

### *Handlooms*

Women of the *Lepcha* community play a key role in handloom weaving. They begin to learn the art from a very young age in weaving intricately colourful fabrics from cotton yarn. The cloth is primarily woven into 'loin loom'.

### *Carpet weaving*

Carpet weaving is done by the women of the *Bhutia* community. Colourful carpets in numerous designs are weaved by them.

### *Thangka paintings*

Thangkas are religious scrolls found hung in monasteries and houses of Buddhists. These are basically life sketches of Lord Buddha. The Thangkas are mainly painted by religious artisans known as *Lharips*.

### Wooden mask making

The artists of Sikkim carve out wooden masks to depict their deities. Wooden masks may depict serene, partly angry or anomaly expression.

**Others:** Other key products include cane & bamboo crafts, soft toys, wood carvings and blanket making.

### 7.7(a) Skill mapping and gap analysis: Handloom and Handicrafts Sector

Entity	Role	Expected competencies	Skill gaps
<b>Handloom weaver</b>	<ul style="list-style-type: none"> <li>Produce quality handloom products</li> </ul>	<ul style="list-style-type: none"> <li>Understanding of weaving process, in which cotton yarn is sent for winding in wooden frames according to the specified length and breadth requirement</li> <li>Knowledge of fitting the wound cotton yarn in the vertical frame loom for the weaving to begin</li> <li>Ability to use the woven fabric to make a variety of items such as <i>Lepcha</i> traditional dresses, shoulder bags, cushion cover, napkins, table mats etc. are made</li> </ul>	<ul style="list-style-type: none"> <li>Lack of creative designs</li> <li>Minimal understanding of customer demands</li> <li>Minimal access to market information</li> <li>Lack quality finishing of the products.</li> </ul>
<b>Carpet weaver</b>	<ul style="list-style-type: none"> <li>Produce carpets with simple and complex designs</li> </ul>	<ul style="list-style-type: none"> <li>Understanding of washing, drying and carding of the cotton / wool yarn</li> <li>Ability for ball making and <i>lacchi</i> making</li> <li>Ability for dyeing and spinning</li> <li>Ability to make <i>Taans</i> from cotton yarn</li> </ul>	<ul style="list-style-type: none"> <li>Minimal understanding of market demand and consumer preferences</li> <li>Lack entrepreneurial skills</li> <li>Inability to reduce the lead time.</li> </ul>

Entity	Role	Expected competencies	Skill gaps
		<ul style="list-style-type: none"> <li>according to the sizes</li> <li>Ability to make designs on the graph paper</li> <li>Ability to weave according to the design, which is drawn on graph paper</li> <li>While the weaving process goes on, ability to use wooden hammers to beat the woven wool into place</li> <li>After the weaving is over, ability to do leveling with a leveling scissor to make the carpet thinner.</li> <li>Ability to do scissoring to give finishing touches to the carpets</li> </ul>	<p>Presently, it takes on average of 12-17 months (depending on size) to complete a carpet</p>
<b>Thangka painters</b>	Make beautiful Thangka paintings	<ul style="list-style-type: none"> <li>Preparation of cloth which has to be painted, which includes sewing the cloth on a large wooden frame, applying glue over the canvas and drying it</li> <li>Application of white clay, water and glue on the dried canvas</li> <li>Knowledge of drawing foundation lines with pencil</li> <li>Knowledge of painting using different colours</li> <li>Knowledge of shading and detailing of the painting</li> <li>Applying gold or silver to the painting</li> </ul>	<ul style="list-style-type: none"> <li>Inability to market the products properly</li> <li>Inability to brand the product for its religious and spiritual value</li> <li>Inability to reduce lead time</li> </ul>

Entity	Role	Expected competencies	Skill gaps
		<ul style="list-style-type: none"> <li>Fixing of brocade frame to the complete Thangka</li> </ul>	
<b>Wood mask making</b>	Carve out masks of deities out of wood	<ul style="list-style-type: none"> <li>Ability to season the wood prior to carving</li> <li>Ability to cut the wood pieces horizontally according to the sizes of the masks to be made</li> <li>Ability to use the curved knife to bring to shape the concave and convex portions</li> <li>Ability to smoothen up the surface of the mask by using sand paper</li> <li>Ability to use synthetic paints to paint the masks</li> </ul>	<ul style="list-style-type: none"> <li>Lack marketing skills</li> <li>Lack networking skills</li> <li>Inability to create new and creative designs</li> </ul>

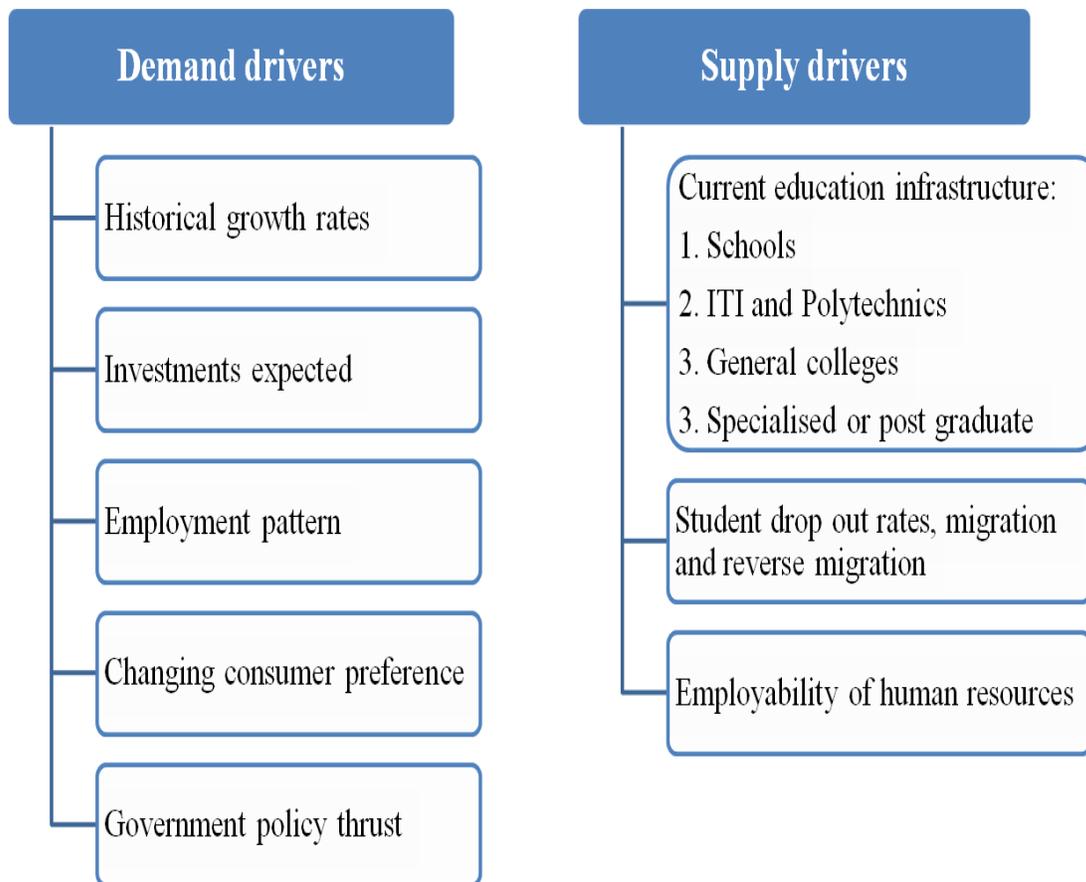
Sources: IMaCS Survey and Analysis

**PART – II (e): Forecasting of Human Resource Requirement**

## 8.1 Human resource forecasting model

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IMaCS has developed a model for estimating human resources requirement for the state based on growth of potential industries at district level.



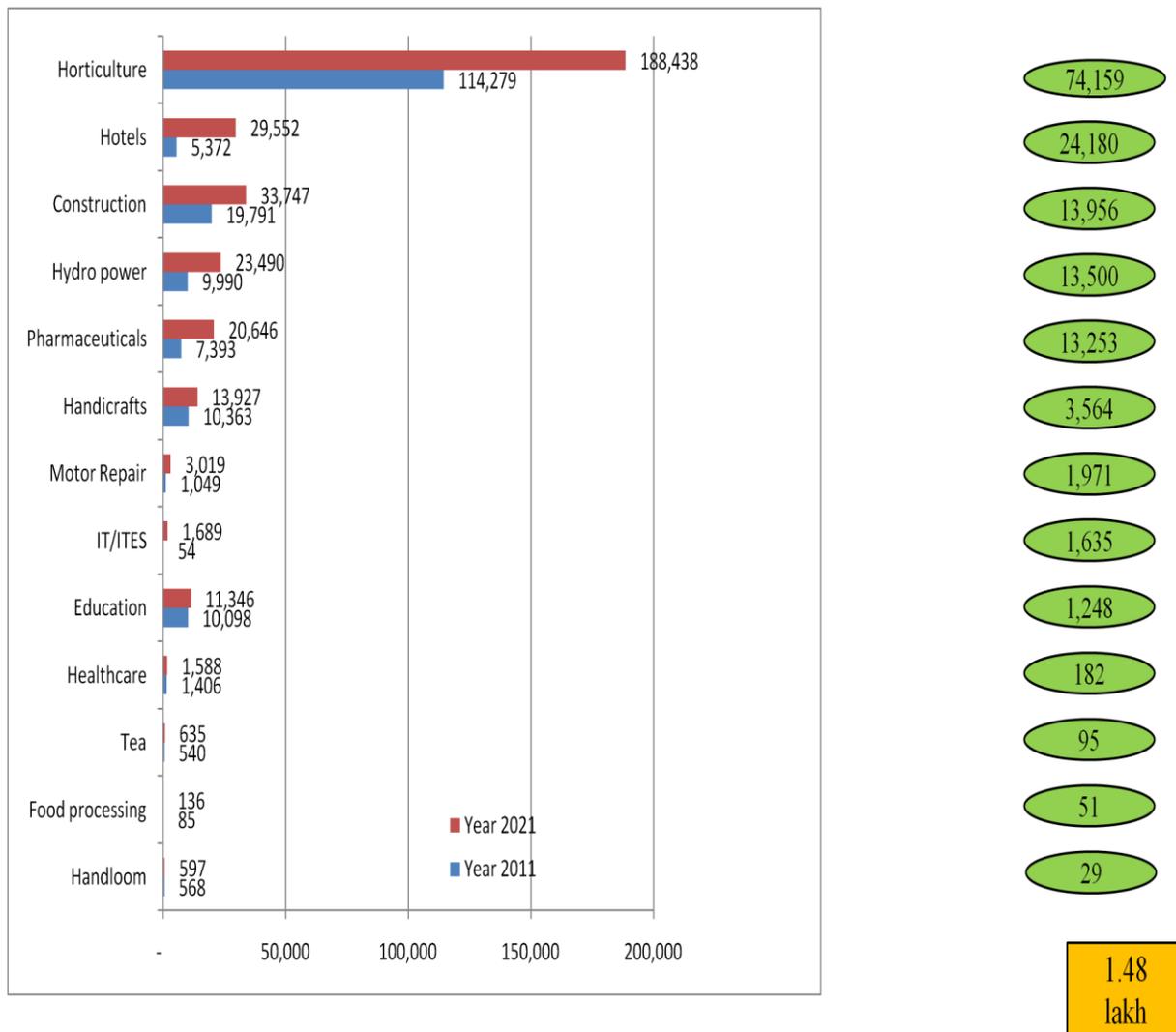
## 8.2 Incremental demand in Sikkim

Sikkim will have an incremental demand for human resource of the order 1.48 lakhs between 2011 and 2021. Retirement of persons in the 50-60 year age group may generate additional 7% vacancies in the demand sectors.

FIGURE 15: DEMAND FOR HUMAN RESOURCE IN SIKKIM

*Human Resource Requirement in Sikkim, Nos.*

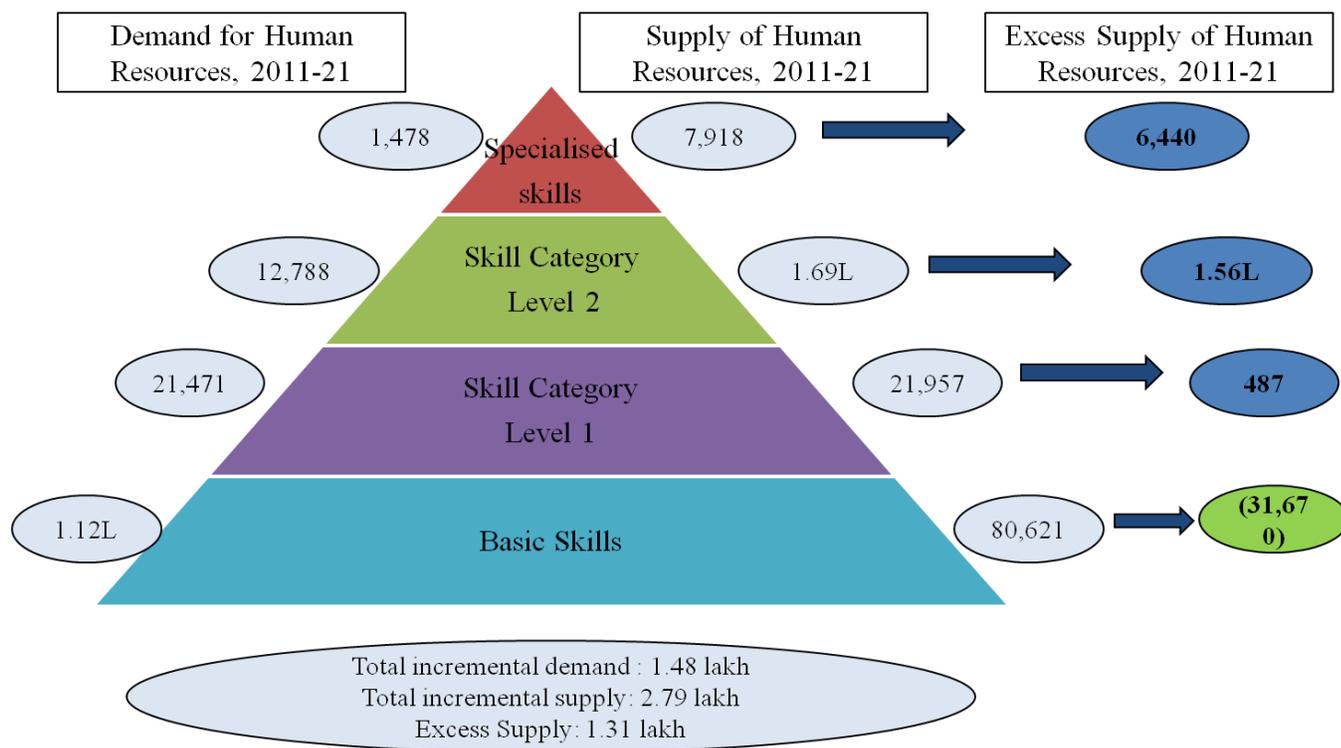
*Incremental demand, 2011-21*



Source: IMaCS Analysis

The demand for human resources will fall short of supply, leaving an excess supply of human resources of 1.31 lakh.

FIGURE 16: DEMAND-SUPPLY OF HUMAN RESOURCE IN SIKKIM



*Specialised skills: Highly qualified and specialised personnel; Skill Category 1: Engineers, Arts, and Science and other professionals with experience; Skill Category Level 2: Vocationally trained; Minimal Education: Minimal qualification or class 5<sup>th</sup>-8<sup>th</sup> pass*

Source: IMaCS Analysis

### 8.3 District-wise human resource requirement in Sikkim – 2011-21

District-wise human resource has been projected in Sikkim up to the year 2021.

TABLE 21: HUMAN RESOURCE REQUIREMENT IN SIKKIM

Districts / sectors	Human Resource Requirement between 2011 and 2021													
	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Pharmaceuticals	Motor Repair	State
East	17	2,067	23,098	51	13,046	1,635	76	496	-	8,474	-	12,548	811	62,124
West	4	535	19,927	-	5,218	-	17	322	-	1,553	2,204	-	406	30,187
North	2	212	5,612	-	3,503	-	33	109	-	1,048	12,116	-	232	22,867
South	6	750	25,522	-	2,413	-	55	321	95	2,880	-	705	522	32,643
<b>Sikkim</b>	<b>29</b>	<b>3,564</b>	<b>74,159</b>	<b>51</b>	<b>24,180</b>	<b>1,635</b>	<b>182</b>	<b>1,248</b>	<b>95</b>	<b>13,956</b>	<b>13,500</b>	<b>13,253</b>	<b>1,971</b>	<b>147,821</b>

Source: IMaCS Analysis

## 8.4 Stakeholder feedback

The various stakeholders met across Sikkim have given the IMaCS team qualitative responses regarding the current status in Sikkim, which are summarized below.

TABLE 22: SIKKIM STAKEHOLDER FEEDBACK

Stakeholder	Key findings
<i>Industry specific feedback</i>	
<b>Handloom and Handicrafts</b>	<ul style="list-style-type: none"> <li>Working in cluster approach</li> <li>Training provided locally</li> <li>Younger generation not interested in working in traditional sectors as the perception is that there are no opportunities</li> </ul>
<b>Horticulture and fruit processing</b>	<ul style="list-style-type: none"> <li>Lack of cold storage facilities</li> <li>Interest in investors to explore areas like floriculture, especially for orchids. These flowers are also getting exported to other states and outside India</li> <li>Need better infrastructure</li> <li>Need better planting materials</li> <li>Market linkage missing for most horticulture products</li> </ul>
<b>Hotels</b>	<ul style="list-style-type: none"> <li>Infrastructure issues deterring investments in remote locations which have high tourism potential</li> </ul>
<b>Pharmaceuticals</b>	<ul style="list-style-type: none"> <li>Infrastructure issues deterring the transportation of pharmaceuticals raw materials which have low shelf life</li> <li>Lack of trained people locally to take up jobs which drives up the hiring costs</li> </ul>
<b>IT / ITES</b>	<ul style="list-style-type: none"> <li>Lack of human resources with computer efficiency for IT / ITES</li> <li>Lack of IT infrastructure</li> </ul>
<b>Power</b>	<ul style="list-style-type: none"> <li>Most of the population wants to work only for short hours in the day which causes bottlenecks in completing the sensitive and high priority power projects</li> </ul>
<b>Construction</b>	<ul style="list-style-type: none"> <li>Construction activity undergoing in areas like roads, bridges, hydro power, building construction</li> <li>Locals not interested in working in construction jobs as they consider it inferior</li> </ul>
<b>Others</b>	<ul style="list-style-type: none"> <li>There is shortage of good quality personnel in area like healthcare, education and motor mechanics</li> </ul>
<b>Industry feedback (overall)</b>	<ul style="list-style-type: none"> <li>Need to create infrastructure (like roads, electricity, telecom) to attract skilled employees</li> <li>Locals are not willing to work in blue collared jobs as they have a preference for government jobs only</li> <li>Educational institutions and industry need to work more closely to industry</li> </ul>

Stakeholder	Key findings
	<ul style="list-style-type: none"> <li>specific sets and courses to meet industry demand</li> <li>Absenteeism in the workforce</li> <li>Preference for shorter work hours</li> <li>Most of the workforce coming from educational institutes are not employable</li> </ul>
<b>Government feedback</b>	<ul style="list-style-type: none"> <li>Focus on factor endowments and resident skills</li> <li>Strengthening of existing infrastructure facilities</li> <li>Working towards better skilling with the Directorate of Capacity Building</li> </ul>
<b>Educational Institutions feedback</b>	<ul style="list-style-type: none"> <li>Facilitate employment market information of other states</li> <li>Focus on providing good quality training</li> <li>Need for better infrastructure</li> <li>Lack of linkages between educational institutes, employment exchanges and industry</li> </ul>
<b>Students / Unemployed youths feedback</b>	<ul style="list-style-type: none"> <li>Open to explore opportunities outside the State, as locally opportunities are scarce</li> <li>After getting exposure outside, willingness to come back if opportunities are presented</li> <li>Preference for Government jobs</li> <li>Lack of industrial exposure</li> </ul>

Source: IMaCS Analysis

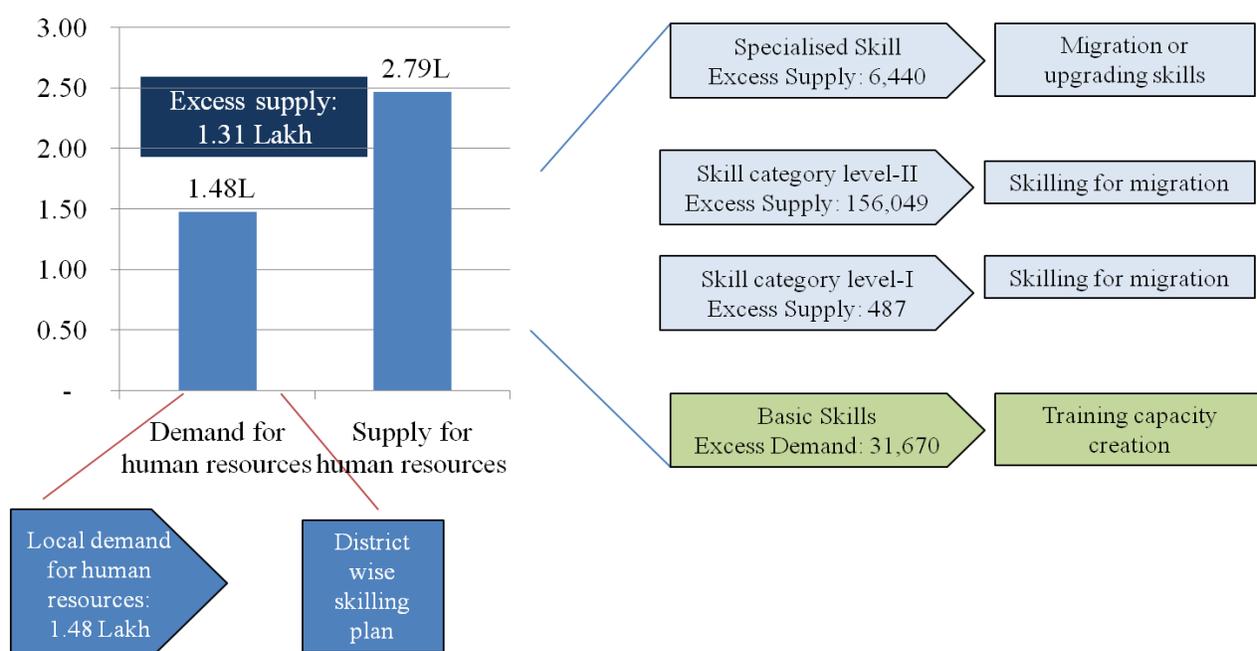
### **PART – III: Recommendations**

## 9.1 Interventions for human resource Demand-Supply gap management

It is estimated that Sikkim will have an incremental human resource demand of 1.48 lakh arising from opportunities within the State between 2011 and 2021. The actual human resource requirement may be slightly higher as number of persons in the age group of 50-60 who are currently working, are expected to retire during this period, leaving unoccupied vacancies. However, the supply of incremental human resources is expected to exceed by 1.31 lakh. While 1.48 lakh persons would have to be skilled for absorption in new and existing jobs created within the State, the excess human resource will initially have to be trained for jobs available outside the State. Reverse migration to the State is likely to happen as more economic activities generate employment opportunities for the youth within the State and entrepreneurship gains significance.

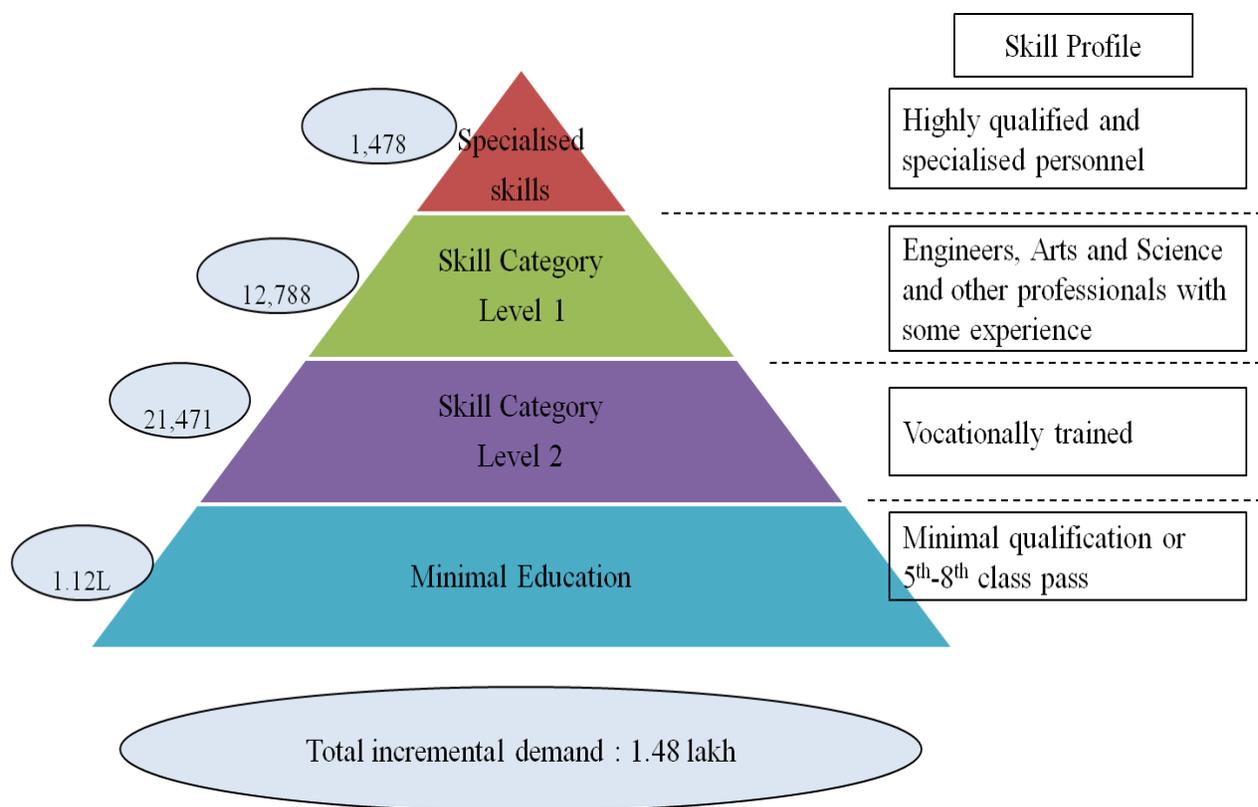
## 9.2 Areas for skilling within state – 2011-21

FIGURE 17: DEMAND-SUPPLY SCENARIO FOR HUMAN RESOURCE



Source: IMaCS Analysis

FIGURE 18: SKILL PYRAMID FOR SIKKIM



Source: IMaCS Analysis

The sectors identified have the description based on what type of skilling needs to be provided based on the skill categories defined prior.

TABLE 23: SKILLING DESCRIPTION

Sector	Minimal Education: 1.12 L	Skill Category Level-II: 21,471	Skill Category Level-I: 12,788	Specialised Skill: 1,478
<b>Handloom</b>	Basic weaving working with looms	Weaving with some experience deciding patterns, colours and designs	Entrepreneur managing working capital, overseeing the weaving process, and establishing market linkages	Master weaving, Designing
<b>Handicraft</b>	Basket making, furniture making, mask	Intricate and complex designing	Entrepreneur managing working capital, overseeing	Designing

Sector	Minimal Education:	Skill Category Level-II:	Skill Category Level-I:	Specialised Skill:
	1.12 L	21,471	12,788	1,478
	making, carpet making		the crafting process, and establishing market linkages	
<b>Horticulture</b>	Fruit, flower and spices growing	Farm extension services providing, Packaging	co-operative management	Marketing
<b>Fruit Processing</b>	Drying and processing of food and fruits into jams, jelly, juice, pickles etc.	Distributing, Packaging	SHG management	Management
<b>Hospitality</b>	Housekeeping person	Front office management	Managerial activities	Tourism package development
<b>IT / ITES</b>	-	Data entry services in hotels, hospitals and offices (govt. and private), Call centre: customer service and helpline services	IT entrepreneurship, hardware maintenance	IT system specialization
<b>Healthcare</b>	Hygiene maintenance	Paramedical services	Doctoral services	Specialists
<b>Education</b>	-	-	Teaching	Research, Training
<b>Motor Repair</b>	Attending basic issues	Attending complex repair issues	Entrepreneurial activity	-
<b>Pharmaceuticals</b>	Raw material grouping	Machine handling, maintenance, packaging	Shop floor management, administration	Scientists, management
<b>Construction</b>	Services in movement of equipment, cleaning	Welding, Machine operation, Electric	Contracting	Project Management

Source: IMaCS Analysis

There are also livelihood opportunities in Sikkim which require skill up gradation. The additional workforce that is available for skill upgradation in livelihood activities in Sikkim is 1.36 lakhs.

TABLE 24: SKILLING DESCRIPTION FOR LIVELIHOOD OPPORTUNITIES

Activity	Description	Skill level	2011 employment
<b>Agriculture (Cultivation)</b>	Agriculture is the main occupation of the inhabitants. Among the chief crops grown are wheat, paddy and maize.	Mostly, unscientific methods of cultivation used.	131,258
<b>Animal Husbandry</b>	Animal husbandry provides supplementary income to many households. The biggest proportion of the livestock population is poultry, followed by cattle, goats and pigs.	Household activity with primitive rearing, feeding and processing skills.	3,796
<b>Apiculture</b>	Bee-keeping is primarily being promoted under Khadi and Village Industries.	Basic skills provided by Government.	805

### 9.3 Skilling for migration

Excess human resource pool available for skilling for employment opportunities available outside the state is 13,131 per year across the following sectors:

TABLE 25: SKILLING FOR MIGRATION

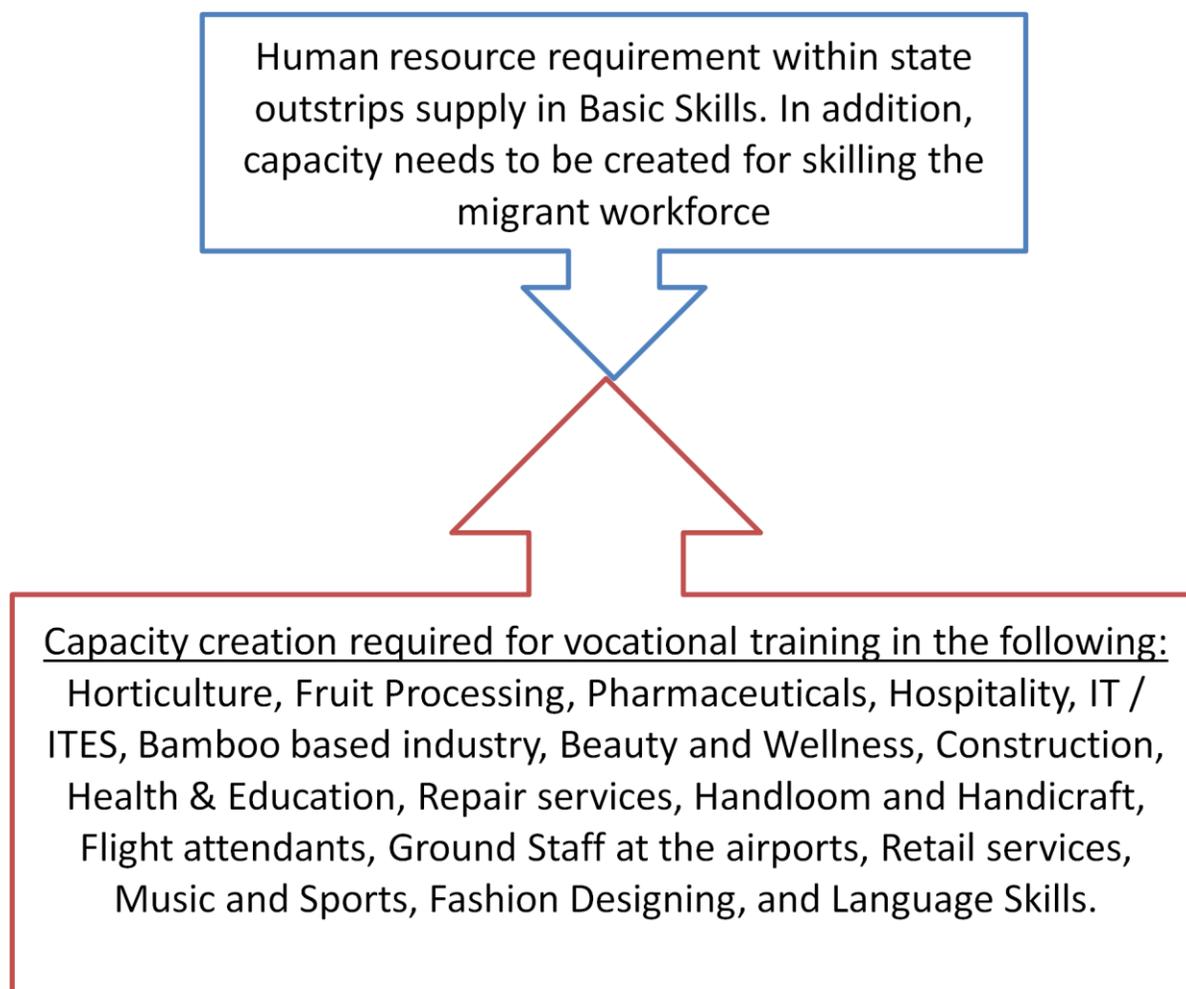
Sectors	Areas for skilling
<b>Beauty and wellness</b>	Spa specialization, beauty expert
<b>Hospitality</b>	Housekeeping services, Hotel Management, Tourism package development
<b>IT / ITES</b>	Data entry, Call centre: customer service and helpline services, IT entrepreneurship, hardware maintenance, IT system specialization
<b>Retail services</b>	Sales services, customer relationship management, front desk personnel management, entrepreneurship
<b>Music</b>	Music composition and performance arts
<b>Sports</b>	Football, wrestling, swimming, athletics
<b>Fashion Designing</b>	Fashion designing, fashion reporting
<b>Flight attendants</b>	In flight hospitality

Sectors	Areas for skilling
Ground staff at the airports	Handling of baggage and cargo, ground staff duties, ticketing, addressing passenger needs and queries
Healthcare	Paramedical services, Specialist medical services
Language skills	English speaking skills mainly
Trainers	Dance, Music and sports training

Source: IMaCS Analysis

### 9.4 Capacity creation within State

The human resource needs to be skilled across the sectors which present employment opportunities and the capacity needs to be created to achieve the same.



Source: IMaCS Analysis

## **9.5 Potential sectors**

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### **9.5.1 East Sikkim**

The district level skilling opportunities for East Sikkim have been identified.

#### **Pharmaceuticals:**

- Centre of Excellence can be set up in East Sikkim as it is the hub of pharmaceutical industry in Sikkim
- Equipment Maintenance courses have to be offered
- Laboratory assistant courses to be introduced which will give more trained manpower to work in the pharmaceutical plants
- Diploma in pharmacy and B. Pharmacy degree courses seat strengths can be increased as there is interest in the youth

#### **Food processing:**

- Give Food Technologist course as Sikkim faces an acute shortage of the same
- Packaging skills to be imparted as a vocational course in ITIs
- Agents to be created who can effectively develop market linkages and help on branding of the unique Sikkim produce

#### **IT/ITeS:**

- Language and accent training courses to be offered
- Basic technical skills have to be provided to increase the computer literacy of Sikkim

#### **Casino tourism:**

- Gangtok attracts tourists who are interested in Casino Tourism
- Skilling can be done to develop bouncers and casino managers
- Skilling initiatives to develop event managers

TABLE 26: SECTOR-WISE, SKILL-WISE HUMAN RESOURCE REQUIREMENT – EAST SIKKIM

**Incremental human resource requirement – 2011-2021**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	2	189	4,852	-	2,545	-	15	-	-	910	10,524	190	-
Skill Category Level 2	0	7	163	-	265	-	5	108	-	40	462	10	-
Skill Category Level 1	0	14	541	-	658	-	13	-	-	87	1,008	29	-
Specialised skills	-	-	-	-	-	-	-	-	-	-	-	-	-

**Phase I – 2011-16**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	-	88	2,124	-	756	-	7	-	-	395	5,262	70	-
Skill Category Level 2	-	3	71	-	79	-	3	54	-	17	231	4	-
Skill Category Level 1	-	6	237	-	196	-	7	-	-	38	504	11	-
Specialised skills	-	1	25	-	10	-	0	1	-	5	61	1	-

**Phase II – 2017-21**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	2	102	2,728	-	1,788	-	7	-	-	515	119	-	5,262
Skill Category Level 2	0	4	92	-	186	-	3	54	-	23	6	-	231
Skill Category Level 1	0	7	304	-	463	-	7	-	-	49	18	-	504
Specialised skills	0	1	32	-	25	-	0	1	-	6	1	-	61

Source: IMaCS Survey and Analysis

### 9.5.2 North Sikkim

The district level skilling opportunities for North Sikkim have been identified.

#### Power

- Train the local manpower in drilling, blasting, heavy earth moving machinery
- Soft skills training to be provided to encourage healthy work culture

#### Adventure tourism

- Mountaineering courses can be given to the hone experts in mountain climbing
- Water Sport training centres to develop instructors and professionals

**TABLE 27: SECTOR-WISE, SKILL-WISE HUMAN RESOURCE REQUIREMENT – NORTH SIKKIM**

#### **Incremental human resource requirement – 2011-2021**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	2	189	4,852	-	2,545	-	15	-	-	910	10,524	190	-
Skill Category Level 2	0	7	163	-	265	-	5	108	-	40	462	10	-
Skill Category Level 1	0	14	541	-	658	-	13	-	-	87	1,008	29	-
Specialised skills	-	-	-	-	-	-	-	-	-	-	-	-	-

#### **Phase I – 2011-16**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	-	88	2,124	-	756	-	7	-	-	395	5,262	70	-
Skill Category Level 2	-	3	71	-	79	-	3	54	-	17	231	4	-
Skill Category Level 1	-	6	237	-	196	-	7	-	-	38	504	11	-
Specialised skills	-	1	25	-	10	-	0	1	-	5	61	1	-

## **Phase II – 2017-21**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	2	102	2,728	-	1,788	-	7	-	-	515	119	-	5,262
Skill Category Level 2	0	4	92	-	186	-	3	54	-	23	6	-	231
Skill Category Level 1	0	7	304	-	463	-	7	-	-	49	18	-	504
Specialised skills	0	1	32	-	25	-	0	1	-	6	1	-	61

Source: IMaCS Survey and Analysis

### **9.5.3 West Sikkim**

The district level skilling opportunities for West Sikkim have been identified.

#### **Fruit processing:**

- Learn to exploit the locally growing exotic fruits like passion fruit and wild apple
- Skilling initiatives that will help in market linkage creation and branding

#### **Religious tourism:**

- Skilling initiative that will create exclusive religious tour guides who can throw light on the myths and legends of Sikkim

**TABLE 28: SECTOR-WISE, SKILL-WISE HUMAN RESOURCE REQUIREMENT – WEST SIKKIM**

**Incremental human resource requirement – 2011-2021**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	4	478	17,226	-	3,791	-	8	-	-	1,349	1,914	332	-
Skill Category Level 2	0	17	580	-	395	-	3	319	-	59	84	18	-
Skill Category Level 1	0	35	1,922	-	981	-	7	-	-	129	183	51	-
Specialised skills	0	5	199	-	52	-	0	3	-	16	22	4	-

**Phase I – 2011-16**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	221	7,542	-	1,126	-	4	-	-	585	957	123	-	221
Skill Category Level 2	8	254	-	117	-	1	160	-	26	42	7	-	8
Skill Category Level 1	16	841	-	291	-	3	-	-	56	92	19	-	16
Specialised skills	2	87	-	16	-	0	2	-	7	11	2	-	2

**Phase II – 2017-21**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	4	257	9,684	-	2,664	-	4	-	-	764	209	-	957
Skill Category Level 2	0	9	326	-	277	-	1	160	-	34	11	-	42
Skill Category Level 1	0	19	1,080	-	689	-	3	-	-	73	32	-	92
Specialised skills	0	3	112	-	37	-	0	2	-	9	3	-	11

Source: IMaCS Survey and Analysis

### 9.5.4 South Sikkim

The district level skilling opportunities for South Sikkim have been identified.

#### Tea:

- Set up a Tea Research Institute
- Give managerial courses that help in estate management
- Courses that develop marketing agents for the Temi Tea brand

#### Fruit processing:

- Short term courses in fruit processing
- Awareness camps across all wards

**TABLE 29: SECTOR-WISE, SKILL-WISE HUMAN RESOURCE REQUIREMENT – SOUTH SIKKIM**

#### Incremental human resource requirement – 2011-2021

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	4	478	17,226	-	3,791	-	8	-	-	1,349	1,914	332	-
Skill Category Level 2	0	17	580	-	395	-	3	319	-	59	84	18	-
Skill Category Level 1	0	35	1,922	-	981	-	7	-	-	129	183	51	-
Specialised skills	0	5	199	-	52	-	0	3	-	16	22	4	-

#### Phase I – 2011-16

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	221	7,542	-	1,126	-	4	-	-	585	957	123	-	221
Skill Category Level 2	8	254	-	117	-	1	160	-	26	42	7	-	8
Skill Category Level 1	16	841	-	291	-	3	-	-	56	92	19	-	16
Specialised skills	2	87	-	16	-	0	2	-	7	11	2	-	2

## **Phase II – 2017-21**

Sectors	Handloom	Handicrafts	Horticulture	Food processing	Hospitality	IT/ITES	Healthcare	Education	Tea	Construction	Hydro power	Motor Repair	Pharmaceuticals
Minimal education	4	257	9,684	-	2,664	-	4	-	-	764	209	-	957
Skill Category Level 2	0	9	326	-	277	-	1	160	-	34	11	-	42
Skill Category Level 1	0	19	1,080	-	689	-	3	-	-	73	32	-	92
Specialised skills	0	3	112	-	37	-	0	2	-	9	3	-	11

Source: IMACS Survey and Analysis

### **9.5.5 Sikkim Skilling interventions**

There are certain common sectors that require skilling initiatives across the state of Sikkim which are common across all districts.

#### **Floriculture:**

- Spread awareness about Sikkim’s floriculture potential
- Short term courses on orchid growing
- Skilling for developing a floriculture value chain

#### **Handicrafts:**

- Skills to shorten the lead time in producing Sikkim unique products like carpets and Thangka paintings
- Computer aided designing skills to be developed to generate the Thangka’s life cycle faster and more accurately
- Develop skills for agents in the arena of market creation

## **9.6 Key interventions for Sikkim**

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- Areas of capacity creation for vocational training include weaving, farm-extension services, products distribution, and packaging, culinary, call centre: customer service executives, paramedical services, mechanic services, beauty culture, welding, logistic planning, electrical, IT services.
- Combining skill training with entrepreneurial skills depending on the level of training.
- Specialist skill development institutes for sports and arts would help encourage the talent of the local youth.
- Between 2011-21, around 13,131 persons per year will have an opportunity for migration for jobs. Key opportunities include retail, call centre operator, nursing, hospitality and floriculture.

**Annexure**

## **1. Methodology used for Demand projections**

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The following methodology has been adopted for making demand side projections of human resources:

- Identification of key economic activities in each district.
- Estimation of current employment numbers in each district, based on information available from Government publications and IMaCS primary survey.
- Forecasting of future employment requirements, using different assumptions (explained in the slide on assumptions) for each industry.
- Different assumptions have been used because of differences in nature, demand and growth potential, factor endowments, commercialisation status, policy thrust, past growth trends, past and expected investments, employment pattern and opportunities for migration of all economic activities.
- Forecasts have been done for all existing and potential industries identified by us. District wise distribution of employment in 2021 is assumed to remain same as it was in 2011.

## 2. List of Abbreviations

List of Abbreviations	
<b>BRO</b>	Border Roads Organisation
<b>BSNL</b>	Bharat Sanchar Nigam Limited
<b>CAGR</b>	Compound Annual Growth Rate
<b>DDP</b>	District Domestic Product
<b>DoNER</b>	Ministry of Development of North Eastern Region
<b>GDP</b>	Gross Domestic Product
<b>GI</b>	Geographical Indication
<b>GSDP</b>	Gross State Domestic Product
<b>HEP</b>	Hydro-electric Power
<b>HRD</b>	Human Resource Development
<b>IID</b>	Integrated Infrastructure Development
<b>IT</b>	Information Technology
<b>ITI</b>	Industrial Training Institute
<b>LMIS</b>	Labour Market Information Systems
<b>mn</b>	Million
<b>MU</b>	Million Units
<b>NABARD</b>	National Bank of Agriculture and Rural Development
<b>NEC</b>	North Eastern Council
<b>NEDFi</b>	North Eastern Development Finance Corporation Limited
<b>NER</b>	North Eastern Region
<b>NES</b>	North Eastern States
<b>NGO</b>	Non-Governmental Organisation
<b>No.</b>	Number
<b>NSDC</b>	National Skill Development Corporation
<b>O&amp;M</b>	Operation and Maintenance
<b>PPP</b>	Public Private Partnership
<b>PWD</b>	Public Works Department
<b>SHG</b>	Self Help Group

## 3. List of Persons Met

Name	Designation	Organization
Mr Tsegyal Tashi	Under secretary	Planning and NEC affairs
Mr A K Giri	Secretary	Energy and Power
Mr P W Rinzing	Joint Secretary	Tourism
Mr K K Pradhan	Secretary	IT
Mr T W Khangsarpa	Secretary	Labour
Ms N Yethunpa	Secretary	Tourism
Mr S D Dhakal	Chief Administrator	Capacity Building
Mr Euthenpa	Special secretary	Industries and Commerce
Ms Ganga Pradhan	Secretary	Handicrafts and handlooms

Name	Designation	Organization
Mr B Prasad	Chief engineer	PWD
Mr Padam Subba	Officer incharge	Floriculture
Mr D K Bhandari	Officer incharge	Floriculture
Mr D Chauhan	Officer incharge	Horticulture
	Registrar	Sikkim Vinayaka Mission University
Mr D Tshering	Director	Dept of Economics and Statistics
Mr Mahesh Patel	Manager	Sun Pharma
Mr Anil Kumar Panda	Manager	Mayfair Spa Resort and Casino
Mr Mahendra Samal	HR Manager	Mayfair Spa Resort and Casino
Mr L Das	Propreiter	Victoria Travels and Tours
Mr D Anandan	DC	East Sikkim District
Dr Parbin Muktan	Administrative Officer	STNM Hospital
Mr Samiran Pradhan	HR Manager	Sibin
Mr Bhutia	Estate manager	Temi Tea estate
Mr Lakshman Pradhan	Production manager	Sikkim Supreme
Mr Pradhan	DC	North Sikkim District
Mr Ugen Bhutia	Deputy director	District Handicraft Center
Mr Y Bhutia	Officer	PWD

#### 4. Training Capacity of Vocational Education in Sikkim

Type of institution	No. of institutions	Seating capacity	District
ITI	1	60	Namchi
ITI	1	312	Rangpo
ITI	1	60	Gyalshing
Polytechnic	2	270	East Sikkim
Polytechnic	1	135	South Sikkim
Engineering Colleges	1	2,000	East Sikkim
Medical Colleges	1	200	East Sikkim
Nursing Training Institutes	1	60	East Sikkim
Tourism Training	1	40	East Sikkim
Aptech	1	15	East Sikkim

## 5. Sikkim – List of Handicrafts Clusters

Location	District	Product	Details
Gangtok	East Sikkim	Carpets	Woollen carpets
Rumtek	East Sikkim	Cane and Bamboo craft	Baskets, bamboo, walking sticks and trays, hand fans, floor mats, churner, bowls, cups, dishes, furniture, chairs, tables
	East Sikkim	Miniature Paintings	
Gangtok	East Sikkim	Metalware	
	East Sikkim	Woolen Carpets by hand	
Gangtok	East Sikkim	Painted Woodwork	Traditional painted furniture
Chungthang	North Sikkim	Cane and Bamboo craft	Baskets, bamboo, walking sticks and trays, hand fans, floor mats, churner, bowls, cups, dishes, furniture, chairs, tables
	North Sikkim	Blankets	
	North Sikkim	Woolen Carpets	
Namchi	South Sikkim	Cane and Bamboo craft	Baskets, bamboo, walking sticks and trays, hand fans, floor mats, churner, bowls, cups, dishes, furniture, chairs, tables
	South Sikkim	Woolen Carpets	
	West Sikkim	Woolen Carpets	
Zungu		Cane and Bamboo craft	Baskets, bamboo, walking sticks and trays, hand fans, floor mats, churner, bowls, cups, dishes, furniture, chairs, tables
Thingachin		Woodwork	

## About ICRA Management Consulting Services Limited

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### IMaCS - An introduction

ICRA Management Consulting Services Limited (IMaCS) is a multi-line management consulting firm headquartered in India. It has an established track record of 17 years in management and development consulting across various sectors and countries. IMaCS has completed more than 1,200 consulting assignments with about 600 clients and has worked in over 40 countries across the globe. IMaCS is a wholly-owned subsidiary of ICRA Limited (ICRA), one of India's leading credit rating agencies. IMaCS operated as an independent division of ICRA till March 2005<sup>1</sup>, when it was de-merged from ICRA and became a standalone company in its present form.

Through the process of carrying out several assignments over the past 17 years, IMaCS has accumulated considerable analytical and consulting expertise, backed by the following organisational capabilities:

- An extensive and organised database on several sectors.
- Knowledge of key factors of success in different projects and program.
- An ability to research emerging global trends, both in specific countries as well as in different sectors, based on primary and secondary data.
- Performance benchmarking
- Quantitative and financial modelling
- Ability to identify the various types of risks and suggest appropriate strategies to mitigate the same
- Ability to work in different geographies on its own and through affiliate partners

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<sup>1</sup> Under the name "ICRA Advisory Services"



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