

**Government of Himachal Pradesh**

**Himachal Pradesh  
Infrastructure  
Development Board  
(HPIDB)**

Study on mapping the existing skill levels of the employable  
youth and the skill gap in Himachal Pradesh

Phase I, II and III Draft Report



**ICRA Management Consulting Services Limited**

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**FINAL REPORT**

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## EXECUTIVE SUMMARY

1. Himachal Pradesh Infrastructure Development Board (HPIDB) mandated ICRA Management Consulting Services Limited (IMaCS) to assist it in mapping the existing skill levels of the employable youth and the skill gap to the State's likely requirement till 2015, factoring in its economic potential. This report projects the human resources requirements of Himachal Pradesh high-growth industries till 2015, maps the human resources skills available currently in the State to such requirements, identifies skill gaps, and suggests measures to bridge the same.
2. The backdrop to the study is the robust economic growth experienced by Himachal Pradesh over the past few years, driven mainly by the State's manufacturing and services sectors. The economic outlook for the State remains buoyant, with the growth impetus expected to be delivered by a broad base of resident industries (manufacturing and service organisations) over the next few years. Industry in Himachal Pradesh has rightly identified availability of skilled human resources as an enabling factor for the realisation of the State's growth plans, and foresees a widening gap between supply and demand in this regard.
3. In this exercise, we adopted the following approach:
  - Diagnostic analysis of the state
  - Identification of industries in the state offering high growth and employment
  - Map the skill requirements for the industries
  - Map the existing education infrastructure in Himachal Pradesh and the expected human resources availability in 2015.
  - Identify skill gaps
  - Suggest measures to be undertaken by different stakeholders (Government, Industries and Educational Institutions) to address these skill gaps and draft human resources development plan for the state and district.
4. The study is proposed to be undertaken in a phased manner with 12 districts spanned over three different phases covering 4 districts each. This report discusses the findings and recommendations for the first phase I, phase II and Phase III covering Shimla, Una, Sirmaur, Solan, Hamirpur, Bilaspur, Chamba, Kangra, Lahaul & Spiti, Kinnaur, Kullu and Mandi. We conducted the study by interacting with the principal stakeholders in Himachal Pradesh and by building on a secondary research on skill development programmes undertaken in India and select foreign nations. The principal stakeholders we interacted with include:

- Industry: manufacturing and services sector organisations across industries which are on the ground in Himachal Pradesh today, and are expected to drive the State’s future economic growth. Educational Institutions: universities, colleges and polytechnics—government/government aided or self-financing
  - State Government Officials
5. We envisage that by 2015, the opportunity landscape in Himachal Pradesh will have 3.5 to 4 lakh new (incremental) jobs to offer, considering the likely improvements in economic output and labour productivity. The employment opportunities envisaged are likely to emanate mainly from the construction, pharmaceutical, hospitality, IT & ITES<sup>1</sup>, light engineering, mineral based industries, textiles, hydro-power and other resident industries. The break-up for such job opportunities in terms of skill level is seen as: about 2.4 lakh skilled and highly skilled professionals<sup>2</sup>, and 1.2 to 1.5 lakh unskilled<sup>3</sup> human resources.
  6. The new employment opportunities would not only call for enhanced functional, and to an extent sector-specific, competencies<sup>4</sup> across levels, but also several “soft” skills, such as communication skills, presentation skills, stress management and team building skills.
  7. The state has a high literacy rate of 77% compared to national average of 65%. To support human resource requirements, the state has a network of about 7 engineering colleges, 10 polytechnics, 97 ITI / ITC, 249 SCVT centres, 8 pharmacy colleges offering about 16000 seats to local population. This is complemented by a network of 72 arts and science colleges, 5 MBA colleges, 4 MCA colleges and 4 universities offering educational facilities across various disciplines. Together, these institutions have the potential to turn out around 320,000 skilled human resources by 2015. However, discussions with key stakeholders revealed that the turnout of engineering / diploma students remain low at 65% and vocational training at 60%. Of the total engineering graduates and diploma holders that these institutions turn out every year, significant proportion of students remain unemployable

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<sup>1</sup> Information Technology and Information Technology Enabled Services

<sup>2</sup> Human resources possessing skills developed through a formal education system. Includes arts and science graduates; engineers, diploma holders and ITI trained professionals; and management and finance professionals.

<sup>3</sup> Human resources with no formal training

<sup>4</sup> For instance, knowledge of the latest manufacturing practices and quality control techniques in the light engineering sectors, project management and cost management techniques in the construction sector, and basic/advanced programming skills and project management skills in the IT sector.

even after completing the course. The primary reasons cited for the “unemployability” of students graduating from the State’s formal education system are:

- Disconnect between academic curricula and industry requirements, resulting in deficiencies in sector specific functional skills, besides lack of practical training, market orientation, and “soft” skills of students graduating from the State’s educational institutions
- Shortfall in appropriately trained faculty; this is a concern assuming increasing proportions. Shortfall in trained faculty results in inappropriately trained students, thereby increasing ‘unemployability’.

8. Our suggestions for narrowing human resources-availability gaps in Himachal Pradesh over the period till 2015, accordingly address the following questions:

- What is the additional physical infrastructure—that is, the increase in capacity of higher educational institutions—required for meeting the enhanced skilled-human resources requirements of Himachal Pradesh industry?
- What can be done by the various stakeholders, viz. State Government, industry and educational institutions, to improve the employability of the State’s unskilled labour?
- What can be done by the various stakeholders to bridge the current and expected gaps in the skills of the State’s “skilled” human resources?

While making our recommendations, we have, wherever possible, indicated a timeframe for their implementation.

9. Our recommendations are structured as human resources development plan which encompasses two broad areas – One, focussing on state level human resources development and second, focussing on district human resources development plan

10. The focus of State level human resources development plan is to outline broad base skill development model for the state and suggest policy interventions to support various skill development initiatives.

As part of this plan, we proposed three level of interventions

- i. Capacity building through additional infrastructure
- ii. Skill development initiatives to address the employability
- iii. Funding requirement and mechanism



## **10.1. Additional Education Infrastructure**

10.1.1. According to our estimate, additional educational infrastructure capable of training students would need to be doubled in Himachal Pradesh to meet the growth needs of the State's industry. Such infrastructure would primarily include engineering, polytechnics and ITIs. We expect a significant proportion of these institutions to be managed through public-private partnerships or private endeavours.

## **10.2. Initiatives for improving employability of unskilled labour**

10.2.1. The Government of Himachal Pradesh needs to conceptualise and roll out a *large scale skill development initiative* targeted at the large pool of minimally educated but skilable workforce. This initiative would cover around 90,000 people and seeks to impart basic training to unskilled work force (primarily agricultural workforce, school drop-outs) so that they can take up jobs in the State's industrial and service sector units.

10.2.2. This training would focus on sectors like construction, tourism and hospitality, agro processing and repair services.

10.2.3. To start with, this training programme would be implemented in Bilaspur, Chamba, Sirmour, Una and Solan

10.2.4. Under this initiative, two forms of skill training, over a duration of one to three months, would be imparted:

- Foundation training aimed at transitioning the new entrants into the industry and covering areas such as workplace culture, general rules, work timings, and safety habits and specific skill training
- Advanced training program aimed at people already working in the industry with a view to upgrade their skills

10.2.5. The annual cost of this training initiative is estimated at Rs.75 crore, to be funded by a Skill Development Fund (SDF) that should be established by the State Government.

10.2.6. Active industry participation would be imperative for the training initiative to be successful. Industry's role in this initiative would be to partner the State Government in developing and conducting the training programmes, especially those related to development of industry-specific skills. We also recommend that the training programme be provided together with industry associations.

10.2.7. The roll-out plan for the grassroots initiative could be as follows:

- Conceptualisation, including formulation of curriculum: by August 2008
- Trial run in select districts : by September 2008

- Full scale roll-out :November 2008 onwards

10.2.8. To ensure effective implementation, it is important to connect human resources to employers. In this context, it is important to recognise and encourage the role of grass-root level training agencies and staffing solution provider. Staffing agencies can provide an effective bridging mechanism by absorbing available manpower and deploying them in industries that require these people. The government should facilitate the development of such market forces in order to ensure quick employability of people being trained in the various skill development initiatives.

### **10.3. Initiatives for addressing skill gaps of trained human resources**

10.3.1. The Government of Himachal Pradesh , along with industry and academic institutions, needs to formulate and implement a *Employability based skill development initiative* that would seek to develop the competencies of the State's skilled human resources to meet industry requirements This would focus on the following initiatives:-

10.3.2. *Create market awareness among the unemployed youths and students* to set high aspiration goals, appraise emerging trends and employment opportunities. This would be achieved through the exchange programme and participation in world skills competition.

10.3.3. *Carry out assessment of skill gaps* for students at an early stage in order to address the gap and provide necessary skills during the remainder of the course.

10.3.4. *Strengthening of current market linkage* through networking with staffing agencies. This would call for formation of consortium of Government, Staffing Solution companies and prospective employers.

10.3.5. Initiatives aimed at improving the course curriculum to make it more relevant to industry needs. The objective of the curriculum changes would be to increase specialization, to increase focus on practical orientation and to facilitate sharing of education resources, especially in niche areas and areas which call for significant infrastructure investment in equipments, facilities and faculty.

10.3.6. Initiatives aimed at improving ITIs by introducing more industry / job oriented courses and improving the effectiveness of IMC in ITIs.

10.3.7. *Establish industry based skill development centres* to facilitate focused skill development activities in industrial clusters. To start with, the focus would be on textiles, pharmaceutical, construction, IT/ITES, Tourism and light engineering. These would be operated by the stakeholders and would facilitate skill development in the respective

industries through activities such as enhanced industry - institution interaction, practical training through live projects, guest lectures and industrial visits.

10.3.7.1. The role of the skill development centres would include:

- Co-ordinating skill development initiatives in the cluster
- Facilitating faculty development & training;
- Facilitating development of teaching aids
- Providing assistance in drawing up training programmes
- Assisting in employment of students and
- Carrying out tierisation of industries on the basis of their level of participation in the skill development initiative.

10.3.8. The success of this initiative would also hinge on the active participation of industry in various activities, including offering live projects and summer projects to students of the institutes covered by the initiative; organising focused industrial tours for students and encouraging their own managers to deliver guest lectures at the various institutes; and upgrading the skills of the institutes' faculty through training.

10.3.8.1. The effectiveness of this initiative would need to be assessed through well-defined metrics, such as employment rate within six months of course completion, internships and on-the-job training sessions offered per year, number of guest lectures offered, and number of faculty development programmes organised.

10.3.8.2. The roll-out plan for this initiative may be as follows:

- Conceptualisation of the initiative : March 2008
- Trial run in select clusters : June 2008
- Full scale roll-out : July 2008

#### **10.4. Initiatives for addressing skill gaps for specialised jobs**

10.4.1. In order to build long term capability, it is imperative to focus on cluster development initiative by linking research institutes, university and industry, the government of Himachal Pradesh should focus creating a blue-print for developing cluster development by looking at forward and backward linkages, human resources requirement, infrastructure development and establishing centre for high education and research. The initial focus would be on Tourism and Hospitality, Pharmaceutical, Light Engineering, IT/ITES, Hydro power, where Himachal Pradesh wants to build long term capability to support these industries.

- 10.4.2. The Government of Himachal Pradesh should establish research centres, funded by public private partnerships, in industrial clusters to facilitate industrial application oriented research and to facilitate industry – institute interaction.
11. The second part of our recommendation is to come out with district specific human resources development plan covering Phase 1 and 2 districts encompassing Bilaspur, Chamba, Kangra, Hamirpur, Shimla, Solan, Una and Sirmaur.
- 11.1. The focus of district human resources development is to identify district specific growth opportunities, suggest suitable employment oriented skill development initiatives and identify implementation agencies
12. The State Government would have a lead role in the skill development initiative. To ensure adequate resource availability for the promotion of various initiatives, the State Government would be required to establish a SDF (Skill Development Fund).
- 12.1. The annual funding requirements to support the initiatives outlined above would be of the order of Rs. 290 to 300 crore, the bulk of which would be spent on large scale skill development initiative and cluster development initiative.
- 12.2. The funding for the SDF should be raised by innovative ways
- 12.2.1. The government should fund the initial corpus to support the training activities of workers
- 12.2.2. Organisations employing these workers would pay the government/financial institution a training fee of the worker. We expect this to cover 50 – 60 % of the total yearly funding requirement.
- 12.2.3. The balance funding could be in the form of government budgetary support or through funding from multilateral agencies
- 12.3. We suggest that the State Government nominate a nodal agency to manage the disbursement of funds that would support the various training initiatives envisaged. The key roles of the nodal agency would include establishing guidelines for funding skill development initiatives, identifying initiatives that meet the guidelines, tracking fund utilisation, and assessing the effectiveness of the programmes. The performance of the nodal agency, in our view, should be overseen by a governing body that would include members of industry and educational institutions, in addition to State Government officials.
13. In summary, several measures, as suggested in this report, need to be implemented by the various stakeholders—State Government, educational institutions and industry—so that Himachal Pradesh human resources requirements are met over the time horizon till 2015. Once implemented, we believe the measures would contribute significantly to ensuring that Himachal Pradesh attains its economic

and industrial growth potential. Besides, the measures also envisage Himachal Pradesh emerging as an exemplar of three-way partnership—among government, industry, and academia—for the development of human resources skills across categories. The path of implementation would however call for some bold and pragmatic decision-making on the part of industry, the State’s educational institutions, and the State Government.

## 1. Introduction

### 1.1. Background

The robust industrial growth witnessed by the state after the announcement of Industrial Policy 2003 has changed the landscape of the economy and led to wide spread establishment of large and medium scale enterprises apart from the small scale industries. This has generated large scale employment; however the potential is expected to be much higher. In order to harness the true potential of the economic growth in terms of employment generation, HPIDB intends to identify the gaps in human resource availability and initiate necessary interventions to ensure the sustainability of industry and employability of workforce.

In this context, Himachal Pradesh Infrastructure Development Board [HPIDB] has mandated ICRA Management Consulting Services Limited (IMaCS) to conduct a study on mapping the skills of human resources to meet the likely requirement of industry by 2015. The purpose of the study is to identify the potential growth engines over next few years, forecast the human resources requirement in terms of numbers and skill sets and suggest measures to bridge them.

### 1.2. Scope of Work

The scope of work of our assignment is to ‘undertake a district-wise study on mapping of existing skills of employable youth and skills gaps in Himachal Pradesh’ so as to take pro-active actions to support the upcoming industrial development of state economy and increase employability of human resources in the state. The 12 districts in the state would be covered in 3 phases as follows:

- **Phase 1: Shimla, Solan, Una and Sirmaur**
- **Phase 2: Chamba, Kangra, Hamirpur, Bilaspur**
- Phase 3: Kinnaur, Lahaul Spiti, Kullu, Mandi

### 1.3. Terms of Reference

The terms of reference corresponding to the above scope of work for the study are as follows:

1. Identify core industry sectors that hold the potential for growth in each district in the State from the following subset of industries
  - a. IT enabled services including medical transcription, voice / non voice based BPOs



- b. Textile
  - c. Pharmaceutical and Chemicals Industries
  - d. Hydropower Projects
  - e. Tourism / entertainment and hospitality/leisure related services
  - f. Cement Mineral based Industries
  - g. Financial Services
  - h. Real Estate / Construction Sector Services
  - i. Transportation
  - j. Light engineering
  - k. Agro-based Industries
2. Analyse current employment pattern of identified industries in each district
  3. Forecast employment potential of identified industries in the State by 2015
  4. Map current and future skill requirements of high growth industries and emerging industries
  5. Map current education infrastructure and future requirements in light of potential industrial growth in the State
  6. Suggest suitable interventions by key stakeholders

## **1.4. Approach & Methodology for the Study**

IMaCS has adopted two-pronged strategy to analyse the issue of skill gap from both the demand side as well as supply side. The approach consisted of five phases which are explained below:

### **Phase – 1: Identify high growth industries for each district in the State**

This phase involved identification of high growth industries in the state as set out under Terms of Reference and mapping these growth engines to each district in the state using selection criteria as follows:

- Historical presence of industry in the district
- Physical and Social Infrastructure
- Availability of trained manpower

- Factor endowments in the district
- Presence of backward and forward linkages in close proximity

### **Phase – 2: Map current employment pattern of identified industries**

This phase involved mapping of current employment pattern in the identified high growth industries of Himachal Pradesh by undertaking an analysis of:

- Historical employment trend
- Proportion of direct and indirect employment
- How the direct and indirect employment requirements are currently met in terms of Intra and Inter-State movement

### **Phase – 3: Identify human resources requirement to support the growth potential**

This phase involved an estimation of the human resources requirement to support the growth potential of identified industries. The following approach is adopted for estimating the human resource requirement:

- Industry-wise classification of work-force into 3-4 levels
- Classification of employment opportunities into direct and indirect
- Estimate the supply of workforce based on turnout of various technical and non-technical education institutes
- Forecast direct employment requirement based on revenue per person, potential increase in value addition, productivity improvement
- Forecast indirect employment opportunities taking into account industry structure, value chain, down stream industries, level of outsourcing opportunities, distribution channels, after sales support
- Based on the above analysis, we will identify industry wise potential gap between demand and supply



Based on the above inputs, we shall forecast the human resource requirement of different industries in Himachal Pradesh till 2015. The requirement shall be compared against the supply of technical and non-technical workforce which shall help us identify the deficit of human resources.

#### **Phase – 4: Map current and future skill requirements of identified industries**

This phase aimed to understand the current and future skill requirement of the identified industries and identify the skill gaps prevalent at the various levels of organizational hierarchy.

##### *Module 1: Map current and future skill requirement of identified industries*

In this module, we shall map the current and future skill requirements of identified industries through extensive discussions with company officials to:

- Review the industry value chain to understand broad level activities – both core and support
- Identifying industry level competencies both functional and soft to support these activities
- Identifying skills required to operate in future by looking at key growth drivers for each industry like new technologies, changing customer preference, new market segments, changing business practices

At the end of this module, we identified industry wise level wise (at least 3 to 4 levels) current and future skill requirements in the State. The inputs of this module are used as a base for analysing the skill gaps in the next module.

##### *Module 2: Identification of skill gaps*

In this module, we have identified key skill gaps by analysing the demand (Industry) and supply (Educational Institute) situation. We intend to cover the following areas as a part of our analysis:

**Table 1 Framework for Demand – Supply Analysis of Manpower**

<b>Supply (Educational Institute) Analysis</b>	<b>Demand (Industry) analysis</b>
What is the current level of literacy?	Industry skill expectations and problems faced by the industry faces in terms of availability of people and skill level

<b>Supply (Educational Institute) Analysis</b>	<b>Demand (Industry) analysis</b>
Availability of educational infrastructure	How skill requirements are met in terms of quantity and quality?
Primary, secondary and tertiary education scenario covering pass-out and drop-out rate	What is the industry recruitment policy?
What are the current issues in course structure?	What is the current level of employability of students?
What is the level of Institute and Industry interactions?	How are new recruits performing, in the perception of the industry?

The above analysis helped in identifying skill gaps arising out of bottlenecks in the educational infrastructure and current availability of functional and soft skills.

#### **Phase – 5: Recommendations**

This phase focuses on recommendations to address skill gap issues at three levels namely, State Government, Industry and Educational Institutions in the State. IMaCS has attempted to address the following issues while drawing out the state and district development plan: -

- What is the education infrastructure required to meet the human resource skill requirement - that is, the number of educational institutions / types of courses required for meeting the enhanced skilled-human resources requirements of industry in each district? Where the capacity building measure should be undertaken in the State?
- What can be done by the various stakeholders to meet the skill requirement of the State?

**Government:** Our recommendation focus on four dimensions:

- Policy level: What kind of policy level changes need to be put in place to drive the skill development initiatives in various industries
- Infrastructure: What kind of infrastructure needs to be developed to address infrastructure bottleneck, what are the options available to develop the infrastructure e.g. public private partnership model

- Financing: Focus here is on identifying sources for skill development fund (budgetary support or multilateral agency support or innovative funding mechanism involving public private partnership) and how to manage the skill development fund
- Monitoring mechanism: How to implement various skill development programmes – who is the project owner, constituents of implementation structure, review mechanism.

**Industry:** Industry level recommendation focus on setting standards, content feedback and preparation, training the trainees, skill certification, industry participation in skill transfer (practical application)

**Higher education institutes:** Recommendations structured around curriculum updation, networking, training the trainees.

**ITIs:** Our recommendation would focus on the functioning and role of Institute Management Committee (IMC) and monitoring of IMCs.

IMaCS has used a mix of both primary and secondary sources of information to undertake the study. We have conducted meetings with a cross-section of stakeholders including key government officials at the State and District Level, select companies from identified industries in each district, educational institutions such as Universities, Arts and Science Colleges, Engineering Colleges, Polytechnics and ITI's related to the industrial activity of each district. A detailed list of people met during the field survey is enclosed as part of [Annexure 1](#)

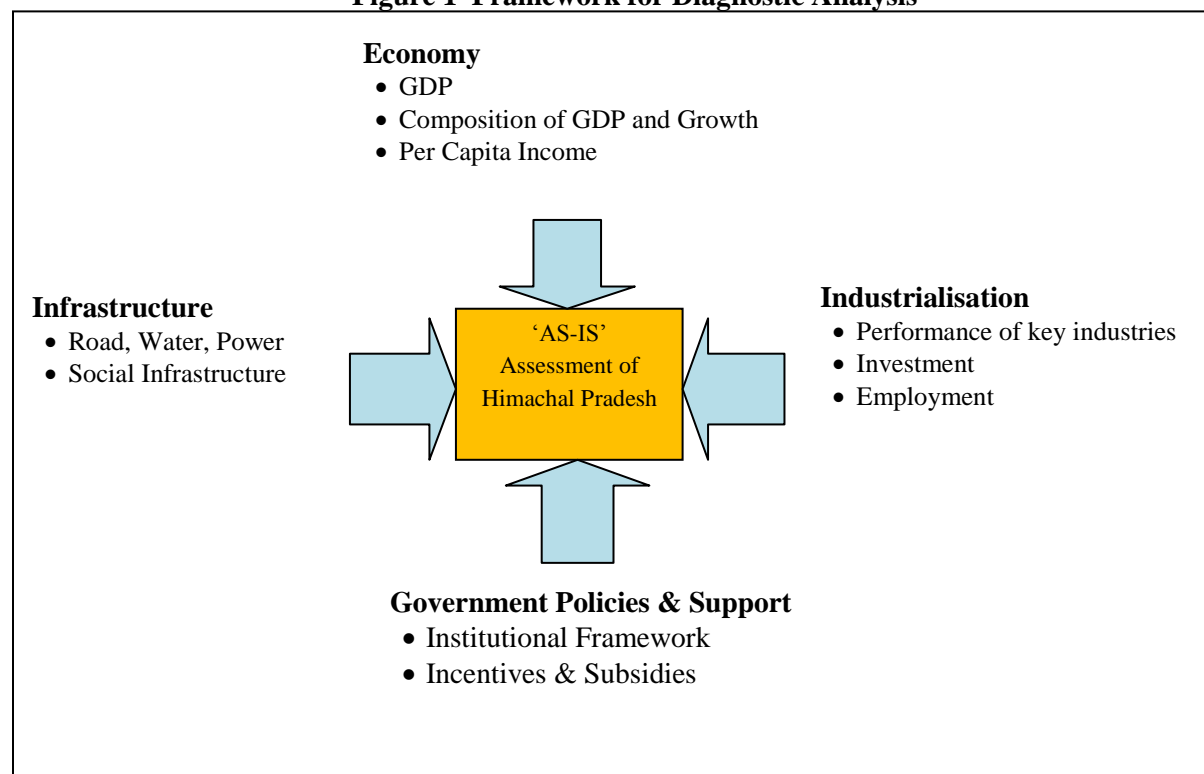
## 2. Diagnostic Analysis

### 2.1. Diagnostic Framework

IMaCS has adopted a multi-pronged approach to conduct a diagnostic analysis of the state and the districts. We have analysed the following factors to understand the socio-economic profile of the state and each of its districts:

- **Economy:** IMaCS has analysed key parameters such as GDP and its constituents, growth rate and change in contribution of different segments, per capita income.
- **Level of Industrialisation:** contribution of different industries to output and employment, investments and number of units in each industry.
- **Government Policies and Support:** Monetary and non-monetary incentives, Industrial Policies and thrust sectors
- **Infrastructure:** Physical Infrastructure such as road, railway, banking facilities, education infrastructure, social factors such as literacy, workforce distribution etc.

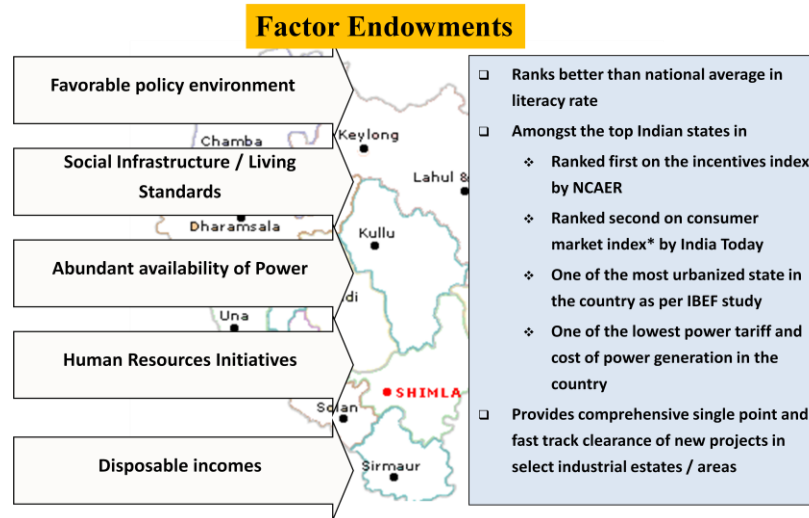
**Figure 1 Framework for Diagnostic Analysis**



Based on the above framework, overview of the state and diagnostic analysis of the districts is presented below.

## 2.2. Overview of the State

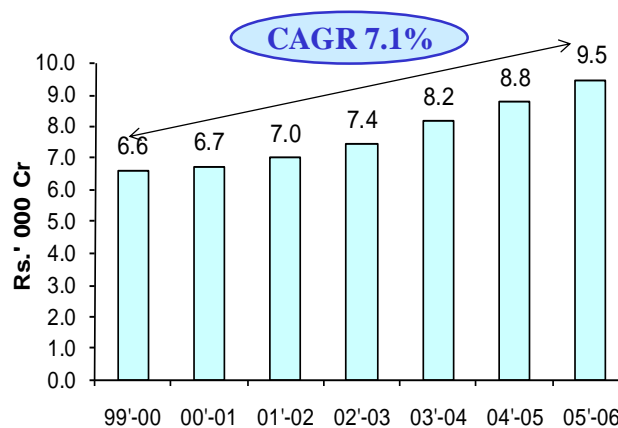
Himachal Pradesh enjoys a number of advantages vis-à-vis other states in the country as listed below:



## 2.3. Economic Overview

The state has experienced a steady economic growth at around 7% over the past few years. It has traditionally been dependent on tertiary sector thus witnessed a restricted rate of economic growth. The introduction of New Industrial Policy in 2003 has provided a boost to the economy by increasing the output and thus state income at a higher rate.

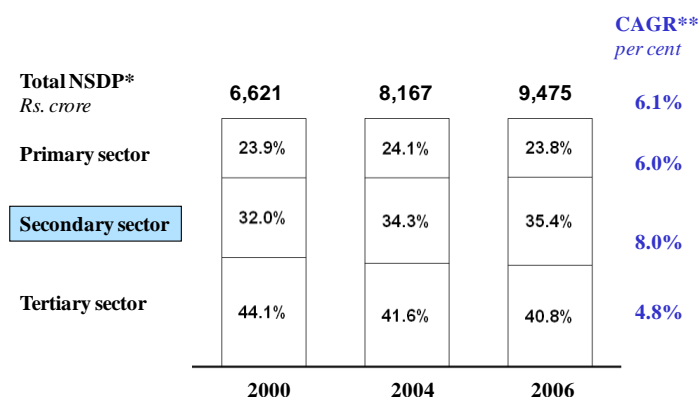
**Figure 2 Net State Domestic Product 2000 - 2006**



Source: Economic Survey of HP 2006-07

Tertiary sector had the highest share in the economic output of the state but it has shown marginal decline due to increase in share of secondary sector following implementation of New Industrial Policy which has brought about a wave of industrialization to the state. The contribution of the three sectors to the state's economy during last few years is as shown below:

**Figure 3 Composition of NSDP 2000-2006**



Source: Economic Survey of HP 2006-07

As is evident from above graph, the growth in secondary sectors has outpaced primary and tertiary sectors and has contributed significantly to the overall growth. Further, certain sub-sectors in secondary and tertiary sectors have been contributing strongly to the growth. Within the secondary sector, manufacturing and construction industry have 87% contribution, with manufacturing having witnessed highest growth during 2000 - 06. Due to increase in economic activity, the transportation, banking and insurance have also recorded double digit growth during 2000 – 06.

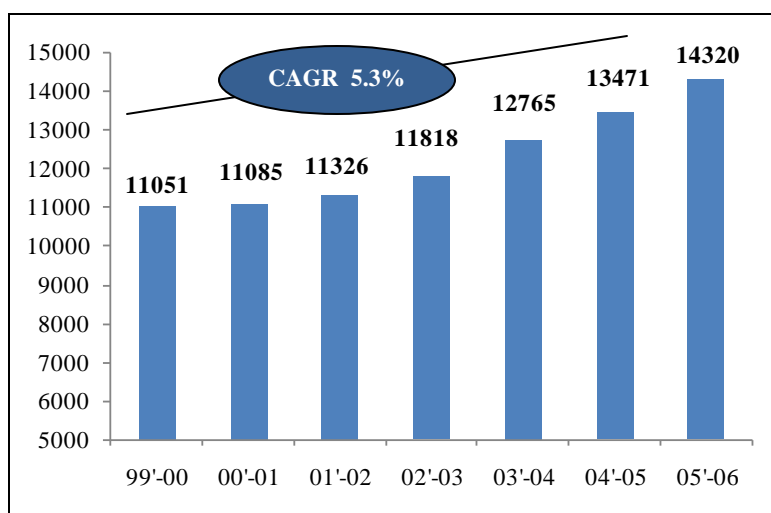
**Figure 4 Growth in constituents of Secondary and Tertiary Sector 2000-06**

	2006 Share in secondary sector Per cent	CAGR 2000-06 Per cent	2006 Share in tertiary sector Per cent	CAGR 2000-06 Per cent	
<input type="checkbox"/> <b>Manufacturing</b>	43.8%	9.2%	<input type="checkbox"/> <b>Trade, hotels, restaurants</b>	21.4%	1.1%
<input type="checkbox"/> <b>Construction</b>	43.4%	7.6%	<input type="checkbox"/> <b>Transport, storage &amp; communication</b>	9.1%	15.9%
<input type="checkbox"/> <b>Electricity, gas &amp; water supply</b>	12.7%	5.1%	<input type="checkbox"/> <b>Banking, insurance</b>	16.5%	11.9%
			<input type="checkbox"/> <b>Real estate</b>	8.2%	2.4%
			<input type="checkbox"/> <b>Public admn.</b>	18.7%	5.1%
			<input type="checkbox"/> <b>Others</b>	26.2%	2.6%

Source: Economic Survey of HP 2006-07

Per capita income in the state has been growing at a consistent pace, Himachal Pradesh per capita income<sup>5</sup> of Rs.14230 is still lower as compared to All India average of Rs.22483. Further, the state economy is lagging behind the national economy in percentage growth which is leading to a widening of the gap in per capita income.

**Figure 5 Per capita Income (in Rs.) 2000-2006**



Source: Economic Survey of HP 2006-07

## 2.4. Trends in Industrialisation

The growth of industrialization in the state can essentially be divided into three phases as detailed below:

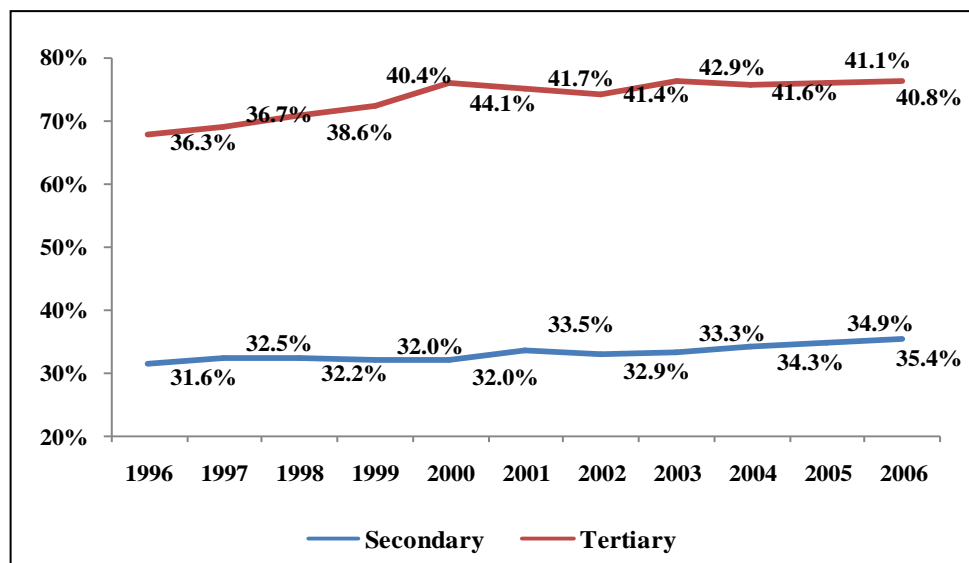
- Pre- 1990's: The state economy was primarily agrarian with more than 50% contribution coming from the agriculture sector. The industrial landscape mainly consisted of small-scale and household industries in light-engineering, handloom and the produce was mainly intended for local consumption.
- 1991-2003: The share of secondary and tertiary sector started increasing with a consequent decline in the contribution of primary sector to 26%. Economic growth was stable at 5.1% which was at par with the national average. The period also witnessed a transition of the workforce from primary sector to secondary and tertiary sectors. The main industries set up in the manufacturing sector were in light engineering, chemicals and textiles.

<sup>5</sup> Calculated based on NSDP at constant prices for 2005-06

- Post 2003: The New Industrial Policy comprising of various incentives in the shape of excise tax, income tax etc was announced and led to the third stage of industrial growth. The state witnessed substantial inflow of investments for medium and large scale industries as opposed to small scale industries which had been predominant in the industrial landscape. The secondary sector witnessed rapid growth followed by tertiary sector with the overall growth rate touching around 9%. The state became an important destination for pharmaceutical companies and hydel power generation. To further assist industrial growth in the state, the government has setup 41 industrial areas and 15 industrial estates with basic amenities spread throughout the state.

The graph below depicts the changing contribution of secondary and tertiary sector in the state economy.

**Figure 6 Percentage Contribution of Secondary and Tertiary Sector to NSDP**



Source: HP Government

The industrial activity is still dominated by small scale industries which provide bulk of employment to the working population. There are about 33,888 small units employing 161,408 people and 369 large units with an employment of 44,665 people as of August 2007. However, New Industrial Policy has stepped up the industrial activity in the large and medium sector industries as proposed investments in large and medium scale industries has outpaced the small scale investments as shown below:



**Table 2 Status of Industries Approval under New Industrial Policy 2003**

	Large/ medium units		Small scale units	
	New	Expansion	New	Expansion
<input type="checkbox"/> No. of units	911	76	8918	229
<input type="checkbox"/> Fixed Investments (Rs. Crore)	21397	836	5633	70
<input type="checkbox"/> Employment (no.)	139728	3706	200506	3307

*Sanctioned since the declaration of Industrial Package of Incentives in Jan 2003 till August 2007*

*Source: Directorate of Industries, HP*

Large and Medium scale industries are expected to be the driver for industrial activity in the coming years. This is further highlighted by the narrowing gap in employment potential between Large and Medium Scale industries and Small Scale industries (Large scale industries currently account for 21% of total employment but are expected to contribute 41% to incremental employment)

The emergence and sustenance of Large and Medium scale industries requires availability of semi-skilled and skilled human resources in sufficient quantities. Hence, the human resources needs to be reassessed and relevant skills imparted based on the future demand of industrial growth.

### 2.4.1. Industrial centres in Himachal Pradesh

In order to provide infrastructural facilities to the entrepreneurs the state government has already developed 41 industrial areas and 15 industrial estates with all basic amenities. Apart from these, the Department of Industries has identified about 22,240 bighas of government and private land so that a Land Bank could be set up for allotment of land to entrepreneurs.

Industrial development in the state has been uneven. Depending on the development achieved, the districts in the state have been classified into two categories by the state government, viz., industrially developed districts and backward districts. The periphery districts of Solan, Sirmaur, Kangra and Una are the industrially developed districts and have around 60 per cent of the total industrial units and 95 per cent of the large and medium industries in the state. The inner districts of Bilaspur, Chamba, Hamirpur, Kullu, Kinnaur, Lahaul & Spiti, Mandi and Shimla have been categorised as backward districts and account for the remaining industrial growth.

Baddi is a leading industrial centre of Himachal Pradesh and is part of the industrial corridor stretching from Barotiwala to Nalagarh. Many Indian companies have setup operations in Baddi because of tax concessions being offered by the Central and State governments. A few leading companies in Baddi are Colgate Palmolive, Cadilla Healthcare, Nectar Life sciences, Torrent Pharmaceuticals etc. Nalagarh, located in Solan district, is an emerging town for production units in industries like leather, steel, chemicals, thread mills and breweries. The district-wise details of SSI units are given in the table below. The data shows that the districts of Solan, Sirmour, Kangra and Una lead in terms of investments attracted.

**Table 3 District-wise details of SSI units in Himachal Pradesh (up to 31-3-2007)**

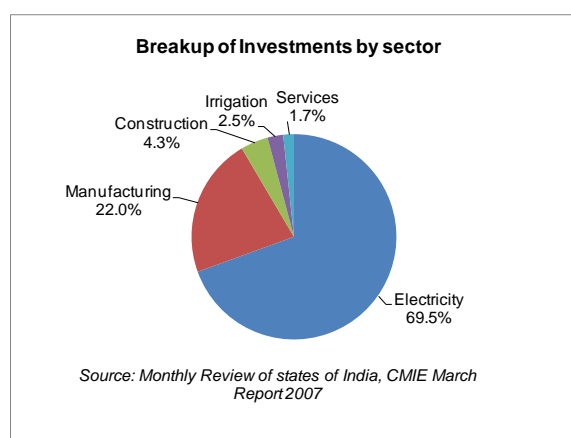
	<b>District</b>	<b>No. of units</b>	<b>Investment (USD million)</b>	<b>Employment</b>
1	Solan	3444	148.81	31,574
2	Sirmour	2652	49.81	13,737
3	Kangra	8448	43.83	36,729
4	Una	2790	23.98	12,527
5	Mandi	3440	19.31	13,866
6	Shimla	3101	12.43	11,324
7	Hamirpur	2574	10.83	9,315
8	Kullu	2286	10.50	11,559
9	Bilaspur	2113	8.60	7,675
10	Chamba	1671	6.13	5,826
11	Kinnaur	537	0.97	1,666
12	Lahaul & Spiti	562	0.68	1,527
	<b>Total</b>	<b>33618</b>	<b>335.88</b>	<b>157,325</b>

*Source: Department of Industries, Himachal Pradesh*

## 2.4.2. Investments in Himachal Pradesh

The state is at the forefront in attracting investment in the country. According to estimates by Centre for Monitoring Indian Economy (CMIE), the outstanding investments in Himachal Pradesh as of March 2007 were roughly Rs. 50,000 crore, of which approximately 56 per cent is under implementation. Rising investments in construction and manufacturing sectors continued to trigger the overall investment growth in the state. Manufacturing sector has witnessed investments coming to sectors like textiles, pharmaceuticals, precision engineering, automobile and automotive components. In the area of construction, housing projects and commercial complexes have seen a tremendous rise. Investment growth in the electricity sector was comparatively sluggish at 6.9 per cent although it attracted the maximum investment in the state.

**Figure 7 Break up of investments by sector**



During the quarter ended March 2007, six new projects were announced in the state. Of these, the most significant project in terms of cost was a Darlaghat Cement Expansion Project to be undertaken by Ambuja Cements.

## 2.5. Government Policies and Regulations

To spread and speed up the industrialisation process in the state and to attract more investors, the state government has enacted new Industrial Policy & Incentive Rules 2004, which was made operational w.e.f. 31.12.2004 in order to provide facilities to entrepreneurs.

The new industrial policy envisages achieving uniform growth of industry and service sector throughout the state. The industrial policy aims at generating employment for the local resource owners and stakeholders. The other areas emphasized in the industrial policy are development of key infrastructural sectors like power, housing, social infrastructure development, human resource development and vocational education. The key initiatives undertaken as part of this policy include:

- Setting up of Single Window Clearance Agency
- Evolution of “best practices” standards in government departments involved in product / service delivery such as the State Electricity Board, Labour Department, Department of Excise etc
- Setting up of activity specific industrial areas such as Food Parks, Electronics city, Export Processing Zones, Bio-technology Parks etc.
- Reforms in the Labour Department regarding annual inspections, maintenance of registers
- Encouraging agriculture, horticulture and floriculture activities.
- Setting up of technical education institutes for making available skilled manpower and social infrastructure for the industry

The government has offered a multitude of monetary and non-monetary incentives as part of Industrial Policy as explained below:

- 15% of investment subsidy on plant and machinery subject to a maximum limit of Rs.30 lakh
- 75% subsidy on cost of transportation of finished goods / raw materials from the units to nearest rail head
- 100% exemption from payment of excise duty for 10 years till 2013
- 100% exemption from income tax for 5 years, 25% (individuals) and 30% (companies) for next 5 years
- GST deferment for 8 years for new industries in Area B and 5 years for new industries in Area A
- Concessional CST at 1%
- Special priority to 100% EOU and Tourism projects for electricity installations

- Restructuring of power sector with setting-up of State Electricity Regulatory Authority
- No Electricity duty on captive power generated through DG sets
- Simplified procedure for inspections only in cases of public interest, others on self-certification basis
- 50% subsidy on the cost incurred for preparation of feasibility report subject to a maximum of 1 lakh for L&M and 50,000 for small unit
- 50% of the costs incurred on development of prototype subject to a ceiling of Rs. 10,00,000/per patent for R&D work undertaken by a company having registered office in HP
- Reimbursement of maximum of Rs. 15000/- per consignment of samples and a total of Rs. 50,000/- per unit for SSI
- 50% of the cost of publishing exports marketing brochures and product literature incurred by industrial units
- 20% subsidy for purchase of pollution control equipment

## **2.6. Infrastructure in Himachal Pradesh**

### **2.6.1. Industrial infrastructure**

Availability of high quality industrial infrastructure is most essential for sustaining and accelerating industrial growth. The Industry Department of the State has developed 41 industrial areas and 15 industrial estates in different districts with basic amenities as roads, power, sewerage, water and communication. During the period 2003-07, around USD 22.7 million has been spent on the development of industrial infrastructure in the state. One growth centre has been developed at Sansarpur Terrace in Kangra district on an area of approximately 1,000 acres with an estimated cost of USD 52 million. An export promotion industrial park, with an investment of USD 47 million, has been developed at Baddi by the Union Ministry of Commerce.

In the future, the Department of Industries proposes to set up an apparel park, industry clusters, agri-export zones (AEZ), and special economic zones (SEZ). Effective implementation of the existing and proposed schemes and programmes, encouragement of private sector participation in infrastructure

development, and simplification of procedures are necessary to ensure accelerated industrial growth in the state.

Some industrial development agencies, viz., Khadi and Village Industries Board (KVIB), National Bank for Agriculture and Rural Development (NABARD) and Small Industries Development Bank of India (SIDBI), have identified a few rural industrial clusters for further development. A bee-keeping cluster has been promoted by KVIB in Kullu. A cluster for steel and wooden furniture in Mandi district and a cluster for bamboo in Kangra district are under consideration. NABARD and SIDBI have identified clusters for metal, woodcraft, wool weaving and Tibetan handicrafts in Kullu district. Some of the District Industries Centres of the Industry Department have recommended activities, which could be viable under the industrial cluster program. These activities and areas are:

**Table 4 Recommended Clusters, Activity Location Wise**

<b>District</b>	<b>Name of the Activity</b>
<b>Kangra</b> (1) Kandror (2) Nagri	Engineering/agriculture implements Wood carving
<b>Lahaul &amp; Spiti</b> 1) Udaipur	Weaving of woollen patti
<b>Kinnaur</b> 1) Tapri	Metal fabrication
<b>Kullu</b>	Shawl weaving, bamboo craft.
<b>Mandi</b> 1) Nerchowk 2) Ramnagar	Automobile Wooden and steel furniture
<b>Sirmaur</b> 1) Rajgarh 2) Sangarh 3) Shillai	Fruit processing Limestone Weaving

<b>District</b>	<b>Name of the Activity</b>
<b>Shimla</b>	Food products, pickles, Jam, packaging & potato wrappers (at Theog)
<b>Hamirpur &amp; Nadaun</b>	Shawl making, furniture, hosiery, leather products, card board boxes & herbal processing
<b>Bilaspur</b> 1) Lethwin 2) Bhadrog	Potters Weavers

*Source: State Industrial Profile of Himachal Pradesh (2001-02)*

### **Industrial Parks**

The state has an export promotion industrial park at Jharmajri-Baddi in Solan district, located on the Pinjore-Swarghat National Highway. This was jointly developed by the Ministry of Commerce, Government of India, and the Department of Industries, Government of Himachal Pradesh. This park is equipped with all the essential infrastructural facilities. Dabur India, Torrent Pharma, Cadbury, Colgate Palmolive, DCM, Birla Textiles, and a host of other corporate have set up their units in this area.

### **Special Economic Zones (SEZs)**

The state government has approved setting up of SEZs in Kangra, Una and Solan districts with an estimated cost of over USD 1.8 billion. These include setting up of a multi-product SEZ at Milwan in Tehsil Indora of Kangra District at an estimated cost of USD 121 million, an airport based SEZ at Gagret in Una District at an estimated cost of USD 1 billion, and a multi-product SEZ at Wagnaghat in Solan District at an estimated cost of USD 652 million.

### **Inland Container Depot**

An Inland Container Depot (ICD) is being set up at Baddi for the benefit of exporting units. The export goods will be cleared by the Customs Department at this depot and will be sent directly to the destination without further opening the containers in the country thus reducing the cost and time involved in further

handling of such goods. The Department has already identified 112 bighas of government land for the setting up of this depot.

## 2.6.2. Medical and Healthcare facilities

<b><u>Health indicators</u></b>		
	<b>H.P</b>	<b>All-India</b>
Population served per		
• Hospital Bed	607.8	1124.3
• Medical institution	23,287	26,536
Birth rate*	20.7	24.8
Death rate*	7.5	8.1
Infant mortality rate**	52	63
<i>*Per thousand persons</i>		
<i>**Per thousand live births</i>		
Life expectancy at birth (years)		
• Male	65.7	64.1
• Female	66.3	65.4

In Himachal Pradesh, the Health and Family Welfare Department provides health services through its network of 90 civil hospitals, 66 community health centres, 439 primary health centres, 22 civil/ESI dispensaries and 2,069 sub-centres. The state government is strengthening the existing medical infrastructure by providing modern equipment and specialised services as well as increasing the strength of the medical and paramedical staff in the medical institutions.

The state government has mapped the Health Mission 2008, for itself to provide effective and efficient health services to the people of Himachal Pradesh. Though Himachal Pradesh has better health indicators than the all-India average, the state's commitment to health improvement makes the basis of the roadmap document, which broadly focuses on the following:

- Increased utilisation of public health services;
- Strengthening of primary health sector;
- Improving the quality of secondary health care;
- Public health administrative capacity building;
- Extending public health services;
- Increased community participation and decentralisation.

With focus on surveillance of diseases, the state is all set to launch the Integrated Disease Surveillance Programme to combat communicable diseases.



### 2.6.3. Infrastructure for savings & borrowings

The Himachal Pradesh State Industrial Development Corporation Limited (HPSIDC) is the principal agency for promotion and establishment of industrial units in Himachal Pradesh. It is a state level financial institution and provides long-term loans for industrial projects. Its main activities include provision of term loans, development of industrial areas and estates and providing escort services to entrepreneurs in matters of securing registrations/ licenses/ clearances from the statutory/other authorities.

Some salient features of the savings and credit infrastructure in Himachal Pradesh are as follows:

- Average population served by a bank office in the state is 9,425 persons, amongst the healthiest ratio in the country even in comparison with other developed states like Maharashtra, Tamil Nadu and Karnataka and the all-India average of 16,152 persons;
- Credit disbursement of District Central Co-operative banks registered a CAGR of 19.7 per cent between 2003-04 and 2005-06 while State Co-operative banks registered 18.22 per cent CAGR in this period;
- The coverage of financial infrastructure in rural areas is fairly vast.

#### Branches of Financial Institutions in Himachal Pradesh

• Commercial bank branches	692
• Regional rural bank branches	138
• State cooperative bank branches 1	59
• Central cooperative bank branches	180
• Cooperative societies	4382

*Source: Economic Survey 2007*

### 2.6.4. Physical Infrastructure

#### Roads

Roads play a vital role in boosting the economy of a hilly state like Himachal Pradesh. Starting almost from scratch, the state government has constructed 29,329 kilometres of motorable roads by September 2006. The road sector has been assigned high priority and USD 45.1 million has been provisioned for the year 2006-07.

**Table 5 Targets for road construction and achievements for 2006-07**

	Unit	Target for 2006-07	Achievement upto Sep.2006	2006-07 Anticipated
Motorable	kilometres	510	634	1,050
Cross drainage	kilometres	520	620	1,100
Metalling & tarring	kilometres	580	495	950
Jeepable	kilometres	25	22	25
Bridges	Number	45	9	45
Villages connectivity	Number	40	86	120

Source: Government of Himachal Pradesh

The state has eight major outstanding road projects out of which two are under implementation (Sarsa Bridge Project and Una-Bhota Highway Project).

### **Railways**

Being a hilly state, the rail network is not strong in Himachal Pradesh. There are only two narrow gauge railway lines connecting Shimla with Kalka (96 kilometres) and Jogindernagar with Pathankot (113 kilometres) and a 33 kilometres broad gauge line from Nangal Dam to Charuru.

### **Airports**

There are three airports in the state. These are at Kullu (Bhuntar), Kangra (Gaggal) and Shimla (Jubbar Hatti). The air routes connect the state with Delhi and Chandigarh. In addition, 35 helipads are available for operation in the state. The government has decided to construct helipads at Banjararoo, Satrundi and Khundi-Murahal in Chamba. The site at Dhangu near Sundernagar has been inspected jointly by a committee of Airport Authority of India and state government officers for the construction of a new airport.

### **Power**

The state has vast hydroelectric potential in its five river basins, namely Yamuna, Satluj, Beas, Ravi and Chenab. It has been estimated that about 20,386 MW of hydel power can be generated in the state by constructing various major, medium, small and mini/micro hydel projects on these river basins. Out of

this hydel potential only 6353.12 MW has been harnessed by various agencies, including 454.95 MW harnessed by Himachal Pradesh State Electricity Board (HPSEB).

**Table 6 Assessed Potential and Potential Installed**

<b>Basin</b>	<b>Total assessed potential MW</b>	<b>Potential installed MW</b>
Satluj	9,989.55	3,276.55
Beas	4,522.90	1,812.80
Ravi	2,226.75	1,048.25
Chenab	2,723.00	0
Yamuna	602.52	215 .52
Himurja	750.00	(21.60)
<b>Total</b>	<b>20,814.72</b>	<b>6,353.12</b>

*Source: Economic Survey 2007*

The state had achieved 100 per cent electrification target during 1988-89, of the then 16,807 inhabited census villages. As per 2001 census, the number of inhabited villages is 17,495. Of these, 17,155 have been electrified by the end of November 2006.

The important projects in the state include Bhakra Project (1354 MW) and the Beas Satluj Link Project (990 MW). The state government has now opened up the power sector to invite private sector investments. Besides, Central PSUs such as NTPC and NHPC have also been invited to take up large projects like Chamera-II, Kol dam and Parbati for execution.

The details of the installed capacity over the years are given in the table below: -

**Table 7 Installed Capacity (In MW)**

Year	Hydro	Diesel	Total
1994-95	272.07	0.133	272.203
1995-96	276.87	0.133	277.003
1996-97	299.37	0.133	299.503

Year	Hydro	Diesel	Total
1997-98	299.17	0.133	299.303
1998-99	299.17	0.133	299.303
1999-00	301.17	0.133	301.303
2000-01	326.2	0.133	326.333
2001-02	326.2	0.133	326.333
2002-03	326.2	0.133	326.333
2003-04	326.2	0.133	326.333
2004-05	329.2	0.133	329.333
2005-06	328.95	0.133	329.083

Source: Himachal Pradesh State Electricity Board, Statistical Outline of Himachal Pradesh 2005-06

## Telecom

Himachal Pradesh enjoys high tele-density, with a telephone present in every sixth household. The corresponding figure for India as a whole is one telephone for every eleventh household. Telephone facility is certainly very critical to Himachal Pradesh where physical mobility is constrained by hilly and mountainous topography, population remains scattered, and extensive areas are not only remote but also remain cut off during winter. The facility is, however, highly unevenly distributed, with Mandi district having a distinct edge. The state has overall experienced substantial growth with outstanding subscriber base increasing by 94 percent to 12.46 lakh subscribers as of March 2007.

All telephone exchanges in the state are digitised and are interconnected by optical fibre cables (OFCs). Himachal Pradesh has the highest density of OFC penetration per unit area with a 6,000 kilometres network.

## 2.6.5. Educational and Training infrastructure

### Status of educational institutes

- 4 Universities
- 97 ITI's
- 249 SCVT's
- 72 Art & Science Colleges
- 3 Medical Colleges
- 23 Colleges of Education
- 4 Dental Colleges
- 12 Teachers Training Schools
- 7 Engineering colleges
- 10 Polytechnic institutions

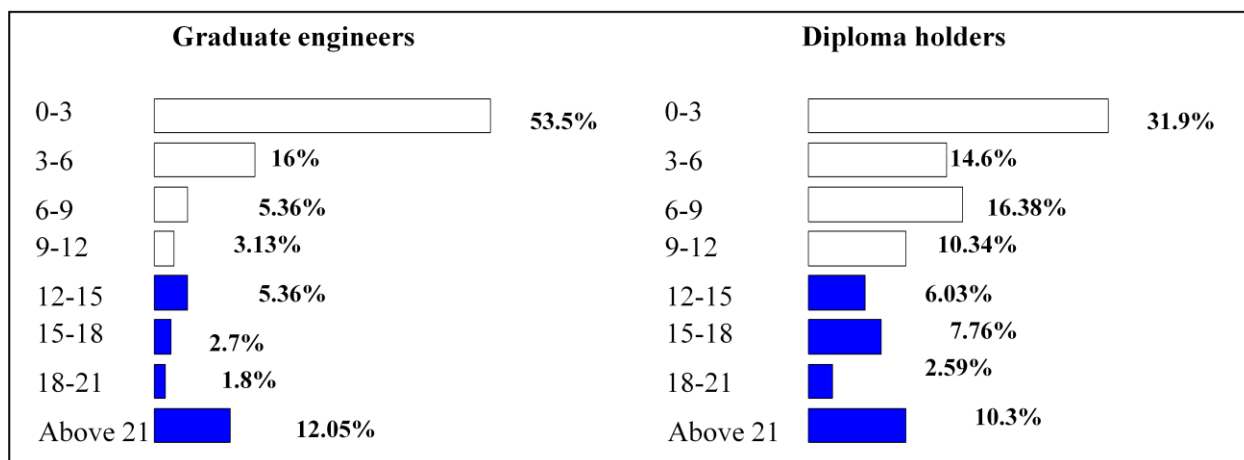
Source: Education Department, Himachal Pradesh,  
Statistical Outline of Himachal Pradesh 2005-06

According to Census 2001, the state has a literacy rate of 77.13 per cent, with male literacy of 86.02 per cent and female literacy of 68.08 per cent. There were 2,180 middle schools, 952 high schools and 708 senior secondary schools in the state as on December 2005. Of these 2,164 middle schools, 936 high schools and 701 senior secondary schools were functioning under the state government management. 44 Degree colleges in the state were functional as of December 2005. With introduction of new ITIs, annual seats in the state stand at over 7,000 for vocational training.

The Himachal Pradesh Private Universities (Establishment and Regulation) Bill 2006 has been passed to provide for the establishment and regulation of private universities in the state for higher education. Though, the state has endowed with good education infrastructure, it suffers from number of systemic issues like any other states.

### 2.6.5.1. Issues facing Engineering

- i. Inadequate infrastructure for placement of students as limited interaction with industry
- ii. Long waiting time for engineers and diploma holders after course completion
  - Waiting time to find employment is higher for diploma holders as compared to graduate engineers
  - Nearly 22% of graduates and almost 27% of diploma holders get their first jobs after a waiting period of one year or more
  - However, increasing trend in HP is to go for diploma as is evident from the 8500 applications received for 1500 seats in polytechnics compared to mere 1800 application for equal number of seats in engineering colleges

**Figure 8 Distribution of students by time taken (in months) to obtain first employment - Year 2005**

Source: NTMIS

- iii. Increasing number of ad-hoc / temporary faculty deteriorating education standards

### 2.6.5.2. Issues facing Arts and Science Graduates

- No upper limit on seats in degree colleges is exercising pressure on existing infrastructure
- No thrust on developing the personality and other soft skills amongst students
- There is also a shortage of staff at most educational institute and limited focus on faculty training to enhance their skills
- Industry feels that the courses taught at undergraduate colleges are outdated and lack practical orientation
- There are huge gaps in education standards across colleges in the state - students coming from smaller towns do not have sufficient knowledge and are poor in spoken and written English
- Most students do not possess basic computer literacy

### 2.6.5.3. Issues facing ITI's

#### i. Limitation of funds leads to inadequate and obsolete training in ITI's

- Lack of funds affects availability and quality of equipments
- Funds for students training are not adequate as many a times students re-work on used materials, practical trainings are reduced for lack of raw materials.

- Delay in funds is mostly for capital expenses like purchase of equipment, construction of building, etc. Principals are expected to spend the allocated funds within the same financial year, but delay in receipt of funds leads to non-utilization of within the same academic session as process of tendering for capital expenses takes time

**ii. Limitation of funds leads to inadequate and obsolete training in ITI's**

- There are insufficient numbers of instructors in ITIs because of freeze on recruitment by the government due to resource constraints. Of the total 413 posts, approx 362 are filled. On account of lack of faculty, instructors from one trade are rotated across other trades for which they do have adequate knowledge
- Though faculty members allowed on contract, compensation terms are not very favourable so as to draw people employed in industry who shall bring a practical orientation
- Instructors devote very little time in developing industry relations or forging other avenues of revenue generation because of involvement with teaching and other administrative work
- Contract faculty programme has severely affected the quality of training
- In certain ITIs, machines are lying unused, as trained faculty members are not available to teach students.

**iii. Long drawn process for changing course curriculum**

- Long drawn process affects relevance of course content as significant changes in the course structure can be taken up only at the NCVT level.
- Each state forwards the comments, suggestions, requests etc. received from ITIs to the NCVT, which meets only twice a year to discuss course related issues. These suggestions are forwarded to curricula expert agencies for evaluation. Approvals of these agencies are sent to the NCVT, which then sends these to the states for their feedback. After many iterations between the states, NCVT and curricula expert agencies, the accepted changes are implemented. Thus, the entire process takes an average of 4 to 5 years for completion, by which the requests have become outdated and new issues have come up
- Certain existing courses (for example, PT, A&C and Ayurvedic) are out of sync with market needs.

**iv. Insufficient initiative for revenue generation**

- Very few ITIs have taken initiatives to generate revenues for themselves (such as ITI Paonta Sahib manufactured the furniture for an engineering college in Kala Amb, ITI Solan, ITI Nahan are also been involved in such activities)
- Lack of clarity in revenue sharing and incentive scheme for faculty results in low interest in these activities

**v. Lack of motivation of faculty members**

- No performance evaluation of staff is done at ITIs, hence no accountability and seriousness
- The Training Manual lists out detailed guidelines for performance evaluation, but in reality nothing much happens. One of the responsibilities of the IMC is faculty evaluation but nothing has been initiated as yet
- Teacher training is not need-based – instructors are nominated for training by the Principal / Directorate on a rotation-wise basis

**vi. Infrastructure for placement in ITI is weak**

- Existing placement cells are not very active due to insufficient staff and in certain cases lack of interest in existing faculty to promote ITI students for placement
- Principal has the sole responsibility of co-ordinating for placements in the absence of a dedicated person handling placement activities. For ITI in industrial areas, industry is proactive in sending queries for placements but need for placement co-ordinator is felt more in interior towns / areas
- Even in cases where staff is deputed, there is lack of supporting infrastructure like telephone and conveyance

## 2.7. District-wise Analysis

### 2.7.1. Bilaspur

#### 2.7.1.1. Demography

Bilaspur district is situated in Satluj valley in the outer hills of the state. The boundaries are shared with Una, Hamirpur, Mandi and Solan districts. The topography consists of low lying hills and plains at mean altitude are 610 m above sea level.



The district is spread over an area of 1167 sq. km which is approximately 2% of Himachal Pradesh. According to 2001 census, the total population of the district is 340,885 with 171,263 male and 169,622 females. The district has low urbanization with only 6.5% of the population residing in urban areas. The district has a density of population of 292 persons per sq. km.

### 2.7.1.2. Literacy

According to 2001 census, the overall literacy rate in Bilaspur district was 77.8% which is almost at par with the state literacy rate.

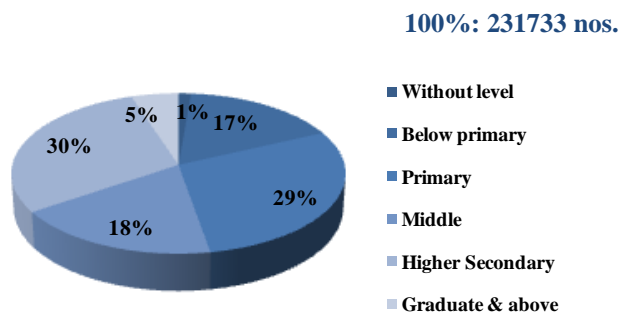
**Table 8 Literacy Status in Bilaspur**

Literacy Status		
Persons	Male	Female
231,733 (77.8%)	127,738 (86.0%)	103,995 (69.5%)

*Source: Census 2001*

Of the total literates in the district, only about 6% are graduates and above. This shows that though there is high literacy in the district, the level of education is limited to only school education and higher learning is not widespread.

**Figure 9 Education-wise Distribution of Literates in Bilaspur**



*Source: HP Government*

The district has a good network of primary and secondary schools run by the government to provide basic education to the local population. Apart from this, the district has about five ITI offering 378 seats in different technical and vocational trades. The district does not have any polytechnic or engineering college for high level technical education.

**Table 9 Education Infrastructure in Bilaspur**

Educational Institute	No. of institutes	Enrolment
Primary School	588	26901
Middle School	123	19447
High School	138	20103
Colleges	3	4866

Source: Source: Government of HP, 2005-06

### 2.7.1.3. Economy

The district economy is driven by agriculture and service based industry. There are very limited opportunities in the industrial sector in the district due to location and resource constraints. The following section presents the status of development of each of the three sectors of the district economy.

#### **Industry**

The only large scale unit in Bilaspur is ACC at Barmana. NTPC is also setting up a 800 MW hydro power plant at Koldam. The district has not witnessed widespread industrialisation in the wake of New Industrial Policy due to:

1. Mountainous terrain makes availability of contiguous land difficult for setting up of large scale industries.
2. Insufficient promotion of tourism related destinations.
3. The industrial area of Goalthai has to be approached through Nangal Dam check post, hence restricting free movement of freight to and from the industrial area.

Bilaspur district has one industrial area in Goalthai. The area already has 3 phases and the 4<sup>th</sup> phase is being developed. Most of the industries which have been set-up are either small scale or micro units. The biggest disadvantage with the Goalthai Industrial Area is its location with relation to the Bhakhra Nangal Project. The approach road from Punjab has to cross through Nangal Check Post which has restricted entry of vehicle from 3.30 PM to 9.30 AM. Hence, it is not feasible for large scale industries to work in shifts. Advantages offered by Bilaspur district for industrial sector are:

1. Proximity to Punjab allows easy access to markets and raw materials.
2. Good road network in the district can be used to promote economic activity
3. Availability of semi-skilled manpower which can be trained on different vocations

4. A large chunk of population working in Baddi Industrial Area hails from Bilaspur, Hamirpur and Kangra and has an inclination to return to industrial areas closer to their homes.

### **Agriculture & Allied**

The area under cultivation is 55939 hectare. The major crops are maize and wheat which make up for approximately 98% of the total food grain production. Area covered under horticulture is 6232 hectare and the mainly sub-tropical fruits such as mango are produced. Horticulture is not very widespread in Bilaspur due to dry climatic conditions and fragmented land holdings. The main fruits produced are Mango, Litchi and Papaya. The total fruit production in 2006 was 4297 MT contributing about 0.6% of total fruit production in Himachal Pradesh. Floriculture is slowly gaining acceptance with around 150 households presently involved in the occupation.

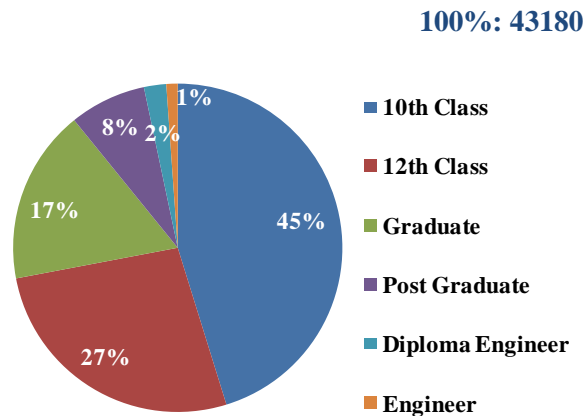
### **Services**

Though agriculture is the mainstay of district economy, people are also employed in service based sectors such as transportation and ancillary units. Transportation sector involves drivers, loaders, unloaders as well a number of road-side mechanics and auto components shops. Good road network and connectivity with other districts as well as with Punjab has slowly developed Bilaspur into the transportation hub for neighbouring districts. It has also encouraged development of floriculture as the product is quickly able to reach markets such as Punjab, Chandigarh, and Delhi etc. Bilaspur is not a major tourist destination but has some places of religious interest. The district received about 8.9 % of the total tourist arrivals in Himachal Pradesh in the year 2005-06.

#### **2.7.1.4. Employment Scenario**

Bilaspur is a source of skilled and semi-skilled manpower to industrialised districts and other neighbouring states. However, not much industrialisation has occurred in the state with ACC and NTPC being the only two large scale industries in the district. The district has around 2200 small scale industries catering mainly to local consumption.

**Figure 10 Education-wise Registration at Bilaspur Employment Exchange**

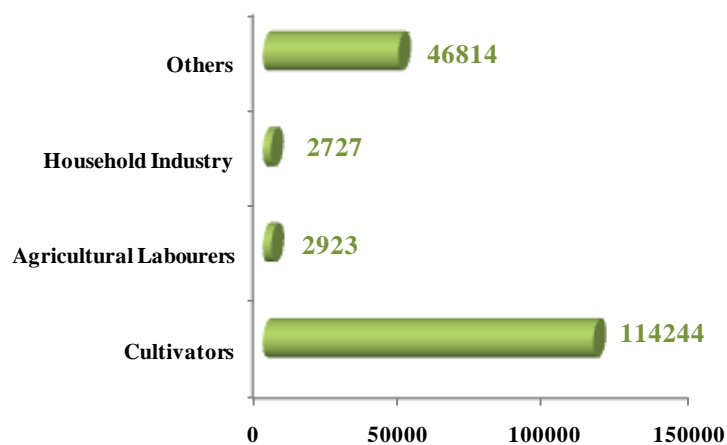


*Source: Employment Exchange Bilaspur as on 31.12.2006*

Based on the live register at the district employment exchange, there is a large number of people with minimal school education (10<sup>th</sup> or 12<sup>th</sup> Pass) but no vocational training. Another substantial proportion of applicants (17% Graduates) have no professional training.

Bilaspur has 110,652 main workers and 56,056 marginal workers. Owing to little urbanisation of the district, most of the workers are concentrated in rural areas and depend on primary sector for livelihood. However, fragmented land holding in Bilaspur has resulted in large proportion of cultivators who till their own small farms.

**Figure 11 Distribution of Workforce in Bilaspur**



*Source : Factbook on Manpower 2004-05, Govt of HP*

### 2.7.1.5. Opportunities

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. **Transportation:** Bilaspur has good road network and is adjoining to Punjab as well as Mandi, Hamirpur, Shimla and Solan districts. Additionally, the cement factory of ACC requires a continuous transportation of cement to Himachal Pradesh and outside markets. Hence, the district offers potential to be developed as a transportation hub to act as a gateway to the interior districts of Himachal.

Currently, the district has two truck unions with a total fleet of about 8500 trucks operating under them. They are facing acute shortage of commercial drivers on account of regulatory issues of compulsory driver training in Mandi for new licenses and renewal of licenses. Further, development of a transportation hub would also encourage self employment such as setting up of more auto-mechanic as well as ancillary shops.

2. **Floriculture:** The dry climate of Bilaspur coupled with limited irrigation and fragmented land holdings is suited for development of green houses / poly houses for floriculture as well as production of off-season vegetables. Also, a good road network enables the farmer to transport the produce quickly and efficiently to markets in Chandigarh, Punjab, Haryana and New Delhi. Presently, around 150-200 families are engaged in this activity and production consists of carnations (flowers) and vegetables such as capsicum, tomato, cucumber.

Currently, the area under cultivation is under 15 hectares. The total area under cultivation of cash crops such as pulses is 483 hectares. Farmers can be encouraged to setup medium or hi-tech greenhouses to increase revenue generation. Typically, a greenhouse set up over 500 sq. metres creates employment for 4-5 persons apart from people required for packaging and transportation during harvesting season. Mostly, the labour is provided by the members of the family who require basic training on processes such as sowing, harvesting, pruning and packaging.

The Department of Horticulture provides capital subsidies of about 33% of cost of construction. A hi-tech greenhouse covering an area of 500 sq. metres requires an investment of about Rs 5 Lakhs. District Horticulture Office also organises one-day orientation camps at block / panchayat level to inform them about sources and quality of seeds, fertilizers and equipments to be used.

However, lack of formal training on harvest and post harvest practices is hampering the development of this sector.

**Small Scale Units:** Infrastructure at Goalthai Industrial Area needs to be developed to attract small scale industries as they do not require large tracts of flat land. The advantages of this Industrial Area are:

- a) Land prices at the Industrial area are relatively cheaper compared to Baddi Industrial Area which can attract SSI with smaller investment plans.
- b) Another critical problem in majority of Himachal Pradesh industrial areas is the lack of basic civic amenities such as housing, education, medical infrastructure etc. Nangal town which is very close to Goalthai has well developed infrastructure and can be used to accommodate people employed working in the industries at Goalthai Industrial Area.

The check post at Punjab border is a deterrent to rapid development of the industrial area as vehicular traffic is restricted to certain times of the day. Hence, raw material and finished good movement is hampered. The administration should look into the possibility of repositioning the check post after the commercialisation of the industrial area.

Goalthai Industrial Area faces competition in attracting investments from Tahliwal and Mehatpur Industrial Areas in Una district. Since these areas have flat land, they are attracting mainly medium scale industries and Goalthai can be positioned to attract small scale industries.

3. **Tourism:** Govind Sagar Lake is a huge water reservoir developed as a result of the Bhakhra Dam over river Sutlej. The lake is spread over an area of 168 sq. kms and provides opportunities for water-sports such as, canoeing, water skiing, surfing etc. White water rafting has potential to be developed on River Sutlej between the towns of Rampur and Bilaspur. Other opportunities such as fishing and boating can also be developed. Govind Sagar Lake offers huge opportunities for development of adventure sports such as para-gliding and hang-gliding as well. Bilaspur has the unique advantage of landing site near water body thus enabling training in more advanced manoeuvres such as dynamic stall, deep stall, spiral dive etc. This can be positioned well among tourist travelling further up to Kullu and as a weekend destination for residents of Nangal township, Chandigarh and other surrounding towns of Punjab.

Regional Water Sports Centre in Kangra district has limited intake to satisfy the demand for professionals / instructors for such adventure sports within the state. Short term courses are already being conducted in various sports and a sustained promotion of these venues for water sports will increase tourist arrival and demand for water sports professionals.

The other lesser known and almost in ruins tourist attractions of Bahadurpur Fort and Naina Devi can be developed to attract tourists to Bilaspur. This has to be supported by good quality hotels along with widespread marketing of these destinations amongst travellers. Further investments in cable car network to Naina Devi and restoration work at Bahadurpur Fort can help attract tourists from neighbouring town of Anandpur Sahib in Punjab to this district in Himachal as well.

4. **Dairy Farming:** Bilaspur has a per capita milk availability of 379 gms<sup>6</sup> per day which is quite low in comparison to neighbouring states such as Punjab with an average of 943 gms per day. Hence, most of the excess demand of milk is met by supplies from Punjab. Bilaspur has witnessed a drop of 11% in milk production over 2004-05 and has dropped to 10<sup>th</sup> place in 12 districts. Hence, animal husbandry needs to be promoted at the district level as a source of additional income as well as self employment in addition to meeting the nutritional requirement of the district. The district has a total household base of about 65,750. Additional cattle requirement is estimated to be approximately 96,670 assuming a per capita milk availability of 550 gms. Assuming setup of units with 10 animals per unit, employment can be generated for 9667 households.
5. **Hydro Power:** Sutlej river flowing through the district is a potential source of hydel power generation. NTPC is constructing a power plant at KolDam which is also providing opportunities for employment in construction sector. Further, the man made reservoirs resulting out of dam construction can be utilised to promote Bilaspur as a stop-over tourist destination amongst Kangra- Kullu bound travellers for adventure sports.

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<sup>6</sup> Source: Directorate, Animal Husbandry Department, Himachal Pradesh

## 2.7.2. Chamba

### 2.7.2.1. Demography

Chamba is surrounded by Jammu and Kashmir, Lahaul and Kangra of Himachal Pradesh, and Gurdaspur district of Punjab. The territory is highly mountainous with altitude ranging from 2,000 to 21,000 feet.

The district is spread over an area of 6528 sq. kms which is approximately 12% of Himachal Pradesh. According to 2001 census, the total population of the district is 460,887 with 235,218 male and 225,669 females. The district has low urbanisation with only 7.5% of the population residing in urban areas. The district has a very low population density of 70.6 persons per sq. km.

### 2.7.2.2. Literacy

According to 2001 census, the literacy rate in Chamba district was 63% which is lowest in Himachal Pradesh due low level of female literacy rate in rural areas.

**Table 10 Literacy Status in Chamba**

Literacy Status		
Persons	Male	Female
246,169 (62.9%)	152,533 (76.4%)	93,636 (48.8%)

*Source: Census 2001*

The district has a good network of primary and secondary schools run by the government to provide basic education to the local population. Apart from this, the district has about seven ITI / ITC offering 538 seats in different technical and vocational trades. The district also has two government polytechnic with 160 seats but no engineering college.

**Table 11 Education Infrastructure in Chamba**

Educational Institute	No. of institutes	Enrolment
Primary School	1079	56615
Middle School	222	29058
High School	157	23449
Colleges	3	3828

*Source: Government of HP, 2005-06*



### **2.7.2.3. Economy**

The district economy is driven by agriculture and service based industry. There are huge opportunities in the industrial sector particularly in the hydro-power projects. The following paragraph presents the status of development of each of the three sectors of the district economy.

#### **Industry**

Chamba district has few industrial areas comprising primarily of micro scale industrial units. Further, Industrial areas in interiors such as Bharmour serve only the immediate local population as transporting of raw materials and goods over long distances is unviable. The principal issues contributing to lack of industrialisation in Chamba district are highlighted below:

1. Mountainous terrain makes availability of contiguous land difficult
2. Distance from main markets increases logistics costs making projects unattractive
3. Very low population density results in very low availability of workforce for industrial units

Advantages offered by Chamba district:

1. Mountainous terrain offers a lot of opportunities of hydro-electric plants to be setup
2. Small-scale industries to meet local demand and cottage and handicraft industries manufacturing traditional articles can be promoted

#### **Agriculture & Allied**

Agriculture continues to be the major source of employment for local population. The area under cultivation is 41,900 hectares. The major crops are maize and wheat which make up for 90% of the total food grain production. Area covered under horticulture is 14634 hectares and the main fruit produce is Apple. Floriculture is another important occupation for the local population with annual turnover amounting to Rs 6 crores. The Teesa valley and Churah Valley have setup floriculture societies for development and marketing of flowers. The climate ranges from semi-tropical to semi-arctic.

As far as horticulture is concerned, a total area of 14634 hectares is covered by fruits such as Apple, Mango, citrus fruits, apricots etc. The mountainous terrain and mainly cool to cold temperature conditions are suitable for apple cultivation. The Pangri Valley especially provides high yield per hectare though the difficult terrain means that the total area under cultivation is less.

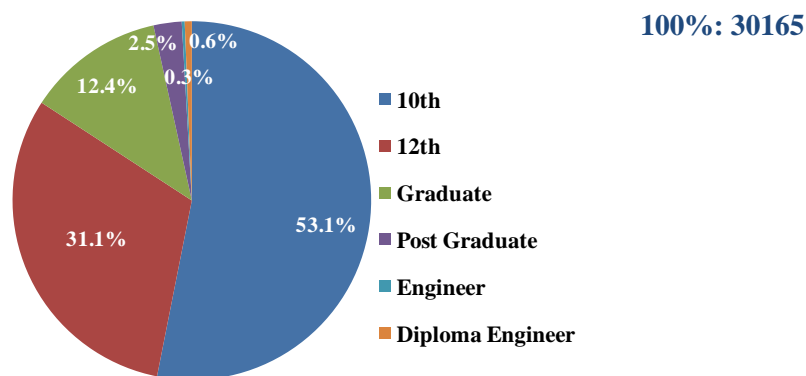
### Service

A sizeable population is also involved in tourism and related activities such as guides, taxi drivers and hotels. Chamba is also a major tourist destination with the town of Dalhousie being especially popular. Chamba offers a wide variety of tourist places ranging from green forests to perpetual snow clad mountains. The district received 6.3% of total tourist arrivals in Himachal in 2005-06 indicating that tourism still has a lot of potential and can be used to increase employment opportunities.

### 2.7.2.4. Employment Scenario

Due to its remote location and unsuitable terrain, Chamba does not have large scale industrialisation. The distribution of literate persons registered at the employment exchange is as shown below:

**Figure 12 Education-wise Registration at Chamba Employment Exchange**

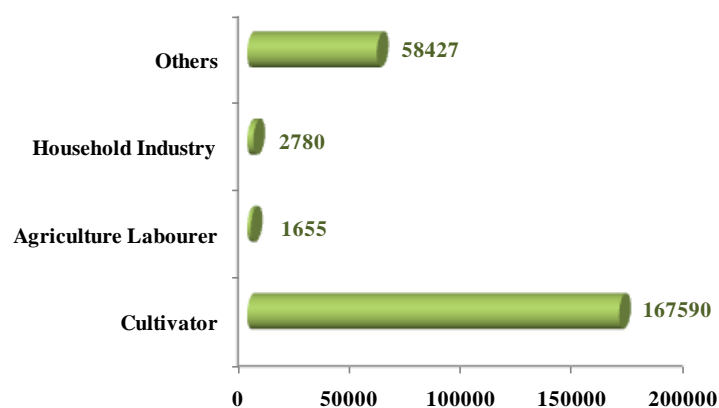


Source: Employment Exchange Chamba as on 31.12.2006

Large number of applicants on district employment exchange are those with secondary or higher secondary education but no technical / vocational training. ITI certified applicants primarily belong to the non-engineering trades.

Chamba has 1,28,452 main workers and 1,02,000 marginal workers. Owing to little urbanisation of the district, most of the workers are concentrated in rural areas and depend on primary sector for livelihood.

Apart from cultivators, a significant proportion of the workforce comprise of other labourers due to presence of some form of industrial activity in the district.

**Figure 13 Distribution of Workforce in Chamba**

Source: Factbook on manpower, Govt of HP 2004-05

### 2.7.2.5. Opportunities

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. **Hydroelectricity:** This sector is expected to be a potential source of employment as construction phase requires substantial amount of manpower. Chamera-III, presently under construction, has a total employment of around 2300 people.

However, paucity of skilled manpower in Chamba has resulted in contractors engaging labourers from outside areas. Chamera-II has initiated training courses in collaboration with ITI Chamba.

2. **Tourism:** It is another area with substantial employment opportunities as the tourism potential of Chamba has not been fully exploited and the district still receives a lesser share of total tourist arrivals in Himachal Pradesh. The district can be positioned distinctly among different travellers:

- Large number of religious spots such as Lakshmi Narayan Temple, Chamunda Temple, Champavati Temple, Vajreshwari Temple and Hari Rai Temple should be renovated and maintained to attract religious tourists.

- Dalhousie, Banikhet, Punchpula, Kalatop and Khajjiar are all located in close proximity and form the most frequented tourist spots in the district. These destinations can be collectively promoted well among both the leisure as well as adventure travellers.

The district is relatively well connected by road and air but lacks visibility in comparison with Shimla and Kullu. Hence, sustained promotion of the various tourism destinations, activities along with 3-6 month short-term courses in tourism and hospitality management should increase opportunities for employment. Further, increased tourism will also provide a market for the local handicraft and handloom industry.

Chappals and handkerchiefs manufactured in Chamba are very popular for their quality and command a premium in the market. Metal and wood crafts are also of high quality but are currently stagnating due to absence of market reach.

3. **Floriculture:** It has registered strong growth over the past few years and turnover for the year 2007 has almost touched Rs 6 crore. Teesa valley and Churah valley are the main centres of floriculture. Further short term training courses on aromatic flowers such as Lavender, Lavendine and Geranium, methods of growing, precautions to be taken as well as capital subsidies / incentives should be used to encourage more farmers to take part in floriculture. Small scale industrial unit can be setup for extraction of oil from flowers. Oil extraction and marketing would lead to value addition and more revenues, thereby attracting more people in the occupation.
4. **Dairy Farming:** Chamba has a higher per capita milk availability compared to other districts due to a high population of cattle and low human population. Also, animal husbandry has traditionally been practiced for a long time and natural environment is quite favourable for milk production. Further, the district has the rich permanent pastures and graze lands available across the state. Dairy farming can be provided renewed thrust in the district so that the excess production can be used to meet demands of neighbouring districts in the state.
5. **Horticulture:** This has substantial potential in the district as the climate conditions are suitable for fruit production. Salooni block is suitable for growing of vegetable crops. The Horticulture Technology Mission provides subsidies for setting up of medium technology and

high technology greenhouses. The incentives offered under this scheme combined with training in the specific areas of horticulture can help generate employment opportunities.

## 2.7.3. Hamirpur

### 2.7.3.1. Demography

Hamirpur was carved out from Bilaspur in the year 1972 and created as a separate district. The area is hilly covered by Shivalik range with elevation varying from 400 meter to 1100 meter. It comprise of area ranging from the almost flat-lands bordering Beas to the lofty slopes of hill-ranges.

Hamirpur is the most literate district of Himachal Pradesh. The district is spread over an area of 1118 sq. km and is smallest in area. According to 2001 census, the total population of the district is 412,700 with 196,593 male and 216,107 females. The district has low urbanization with only 7.3% of the population residing in urban areas. The district has a density of population of 369 persons per sq. km.

### 2.7.3.2. Literacy

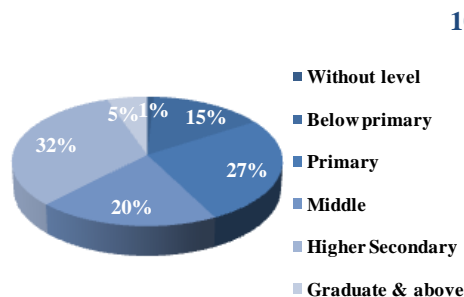
Hamirpur has the highest literacy rate in Himachal Pradesh. The distribution of literacy is described in the table below:

**Table 12 Literacy Status in Hamirpur**

Literacy Status		
Persons	Male	Female
298,498 (82.5%)	152,537 (90.2%)	145,961 (75.7%)

*Source: Census 2001*

Of the total literates in the district, only about 5% are graduates and above. This shows high literacy in the district corresponds to primary, middle and secondary school education with limited focus on higher education.

**Figure 14 Education-wise Distribution of Literates in Hamirpur**

Source: Government of HP

The district well distributed network of primary and secondary schools run by the government to provide basic education to the local population. Apart from this, the district has about eleven ITI / ITC offering 1000 plus seats in different technical and vocational trades. The district also has one government polytechnic with 210 seats and National institute of Technology with 340 seats for high level technical education.

**Table 13 Education Infrastructure in Hamirpur**

Educational Institute	No. of institutes	Enrolment
Primary School	509	28643
Middle School	126	21598
High School	191	33691
Colleges	8	7400

Source: Government of HP, 2005-06

### 2.7.3.3. Economy

The district economy is dependent on agriculture and service sector (trading activities). Apart from this, a large portion of the population is also employed in the armed forces. Most of the industrial activity comprise of micro sector undertaking engaged in wooden and fabricated furniture, flour mills, food processing and hosiery catering to local demand within Hamirpur and neighbouring districts.

#### Industry

The district currently has only one medium scale enterprise employing fifty workers with an investment of Rs.50 crore. The district has two industrial areas at Budwa and Nadaun. All the plots and sheds at the

two areas have been allotted to small and micro level industries. The principal issues contributing to lack of industrialisation in the district are:

1. The area covered by district is quite small leading to non-availability of land at convenient locations. This has led to an increase in prices of privately held land making setting up of small scale industries unviable.
2. Hamirpur faces competition from neighbouring districts of Bilaspur and Una which are comparatively better placed in terms of land availability for industrial areas.
3. Lack of focus on large-scale entrepreneurial activities to exploit the potential offered by local resources. Small scale and micro industries being funded through Prime Minister Rozgar Yojana and Khadi and Village Board run financial assistance scheme are the main source of self-employment. Since these are primarily micro level industries, hence employment generation is not substantial.
4. Absence of marketing agencies for marketing of produce is hampering the scaling up of operations by small entrepreneurs.

Advantages offered by the district are:

1. High literacy rate provides a ready pool of skilled and semi-skilled manpower which can be utilised to attract industries.
2. Presence of National Institute of Technology can aid setting up of entrepreneurial cell for identifying and fostering the establishment of industrial units using local produce as raw material.

### **Agriculture & Allied**

The major crops are maize and wheat which make up for almost 100% of the total food grain production. Area covered under horticulture is 5143 hectares and the main fruit cultivated are Mango, Litchi, Lemon, and Orange which are transported in raw form to nearest markets such as Chandigarh and New Delhi. Floriculture as an occupation is slowly picking up though its not as widespread as in Bilaspur district. The prime reason for this is contiguous but fragmented land holdings and unsuitable soil.

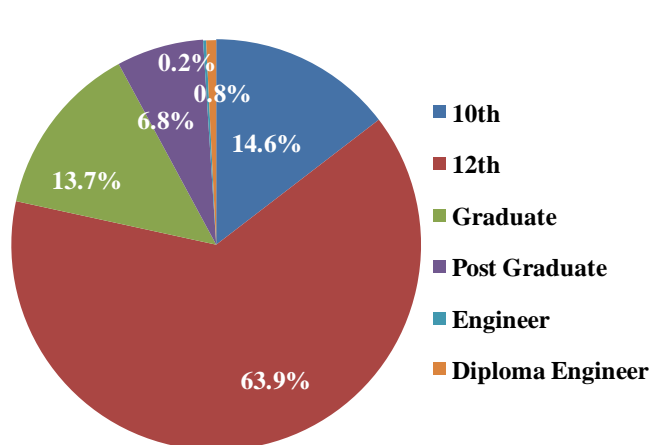
## Services

Trading activities contribute significantly to local economy as large numbers of people are engaged in supplying the articles to meet the daily needs of the local population. Tourist inflows in the district are very low due to limited potential in terms of natural beauty, historical monuments and religious destinations.

### 2.7.3.4. Employment Scenario

Hamirpur being the most literate district has good availability of skilled and semi-skilled manpower. However, lack of industries in the district has forced manpower to relocate to Solan and Sirmaur districts. The distribution of persons registered at the employment exchange is as shown below:

**Figure 15 Education-wise Registration at Hamirpur Employment Exchange**

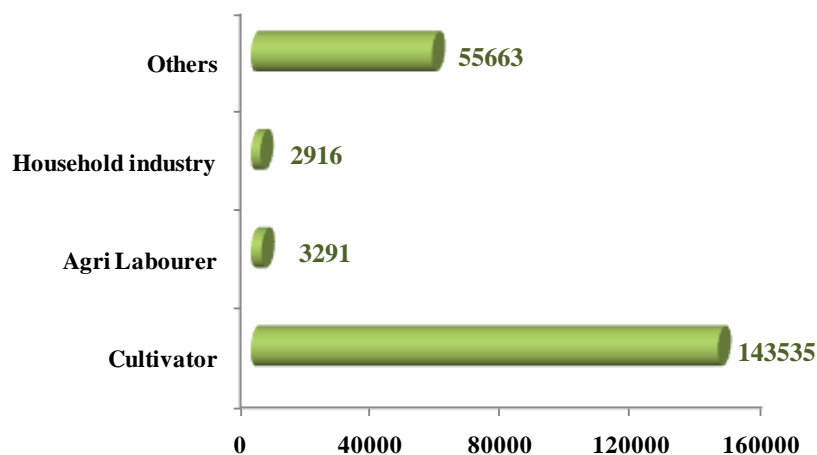


*Source: Employment Exchange Bilaspur as on 31.12.2006*

Based on the live register at the district employment exchange, there is a large number of people with minimal school education (10<sup>th</sup> or 12<sup>th</sup> Pass) but no vocational training. Another substantial proportion of applicants (14% Graduates) have no professional training.

Hamirpur has 120,896 main workers and 84,700 marginal workers. Owing to little urbanisation of the district, most of the workers are concentrated in rural areas and depend on primary sector for livelihood. However, fragmented land holding in Hamirpur has resulted in large proportion of cultivators who till their own small farms.



**Figure 16 Distribution of Workforce in Hamirpur**

Source: Factbook on manpower 2004-05, Govt of HP

### 2.7.3.5. Opportunities

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. **Dairy Farming:** Hamirpur has low milk production and more than 50% of the local demand is met through supplies from Punjab. Though dairy farming can be given only limited thrust in the district since the small geographical area leads to lack of large permanent pastures and grazing land, the government should promote the same among local population with small farm holdings which can be developed into feeding grounds for cattle. Apart from this, the government should promote poultry farming in the district which does not suffer from these constraints.
2. **Tourism:** Though the district offers limited opportunity in tourism sector, the historical fort of Sujapur Tihra can be promoted under event – based marketing around annual festival of Holi.
3. **Maize Processing:** Setting up of Maize processing plants for production of starch and/or bio-fuels is another area which can be explored and requisite training and financial assistance can be provided to individual in setting up these plants. This would also require captive power plants which can be setup as small hydro projects on Beas and Satluj river and generate mass scale employment for local people. Similarly, fruit processing units and pinestry for foam can also be promoted. Entrepreneurial course in government polytechnic can be started after conducting a

feasibility of the number of units that can be set up in these areas. Vocational trades can be started in district ITI to develop technical skills in related processes.

4. **Horticulture:** The small and fragmented land holdings in the district offer immense potential for development of poly houses, which has not been promoted well in the district. The cost of setting up green-houses is estimated at about Rs. 1 lakh per sq.mt of which about 33% is re-imbursed by Department of Horticulture by way of capital subsidies. District Horticulture Office also organizes one-day orientation camps at block / panchayat level to inform local people about sources and quality of seeds, fertilizers and equipments to be used. However, lack of formal training on harvest and post harvest practices is hampering the development of this sector. Formal vocational training in terms of pre and post harvest farm practices and regular refresher courses in crops to be produces, seeds and manures to be used will go a long way in accelerating the popularity of this opportunity among local population

## **2.7.4. Kangra**

### **2.7.4.1. Demography**

Kangra district came into existence in 1972 consequent to re-organisation of districts by the Government of Himachal Pradesh. The terrain ranges from flat lands to high altitudes with climate varying from sub-tropical to sub-temperate.

The district covers an area of 5739 sq. km out of which 1175 sq. km is cultivated. According to 2001 census, the total population of the district is 1,339,030 with 661,254 male and 677,776 females. Kangra is the most populous district of Himachal Pradesh with a share of 22.03% of the total population. The district has low urbanization with only 5.4% of the population residing in urban areas. The district has a density of population of 233 persons per sq. km.

### **2.7.4.2. Literacy**

According to 2001 census, the overall literacy rate in Kangra district was 80.6% making it the most literate district in the state.

**Table 14 Literacy Status in Kangra**

Literacy Status		
Persons	Male	Female
940,505 (80.1%)	500,383 (87.5%)	440,122 (73%)

*Source: Census 2001*

The district has a good network of primary and secondary schools run by the government to provide basic education to the local population. Apart from this, the district has about seven ITI / ITC offering 1546 seats in different technical and vocational trades. The district has one polytechnic with 160 seats but no engineering college for high level technical education.

**Table 15 Education Infrastructure in Kangra**

Educational Institute	No. of institutes	Enrolment
Primary School	1755	104304
Middle School	377	69657
High School	527	87457
Colleges	17	16816

*Source: Government of HP, Year 2005-06*

### 2.7.4.3. Economy

Agriculture continues to be the major source of employment for local population. Though industrial activity, currently is prevalent to a very limited extent but government expects the industry and service sector particularly the ITES sector to be the driver of growth in addition to agriculture sector.

#### **Industry**

Kangra district has a lot of industrial areas such as Raja ka Bagh, Sansarpur Terrace, Nagrota Bagwan, Damtal, and Bain Attarian. The district has received a lot of proposals from small scale industries but most of the proposals have not been taken forward. The Industrial Area of Sansarpur terrace particularly has been facing infrastructural issues such as inconsistent electricity supply and lack of accommodation and basic healthcare facilities. Further, the Industrial Area is approached through Pong Dam which results in restricted timings for incoming and outgoing freight. The principal issues contributing to lack of industrialisation in the district are:

1. Inconsistent electricity supply in the industrial area
2. Lack of civic amenities in the industrial area obstructing industrial growth and workforce relocation to these areas
3. Competition from other industrial areas such as Tahliwal and Gagret in Una which are better connected to Punjab
4. Absence of a railway line results in high freight costs on account of transportation from Pathankot to industrial areas by road

Advantages offered by Kangra district:

1. Most populous district hence availability of sizeable local market
2. Presence of large number of technical training institutes resulting in good availability of skilled local manpower

### **Agriculture & Allied**

The district has 38% of its land under cultivation with major produce being rice, wheat, maize, barley and oil seeds. Wheat is the most important crop of Kangra district followed by Rice and Maize. The district also has substantial area under horticulture and the total fruit produced was 40508 MT in 2006-07. The main fruits cultivated are citrus and sub-tropical fruits such as Mango, Litchi, Guava and other citrus varieties.

As far as horticulture is concerned, a total area of 36,223 hectares is covered by fruits such as Apple, Mango, citrus fruits, apricots etc. Kangra lies in the sub-tropical zone and hence apple cultivation is not as widespread as in other districts. Mango and citrus fruits are the main produce of horticulture along with some quantity of dry fruits.

### **Services**

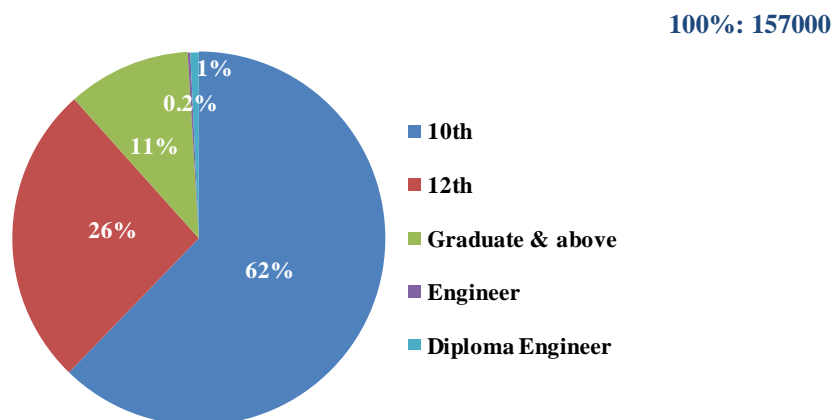
The district has a lot of trade activity and is a major tourist attraction in the state. The district received 14.8% of total tourist arrivals in Himachal Pradesh in the year 2006. The district plays host to all types of tourism – religious tourism, adventure tourism as well as leisure tourism. Further, the government expects to develop the district into an ITES hub by announcing two IT parks in the district which shall help attract ITES companies to the district.



### 2.7.4.4. Employment Scenario

The district is not very well placed in terms of employment generation. The distribution of persons registered at the employment exchange is as shown below:

**Figure 17 Education-wise Registration at Kangra Employment Exchange**

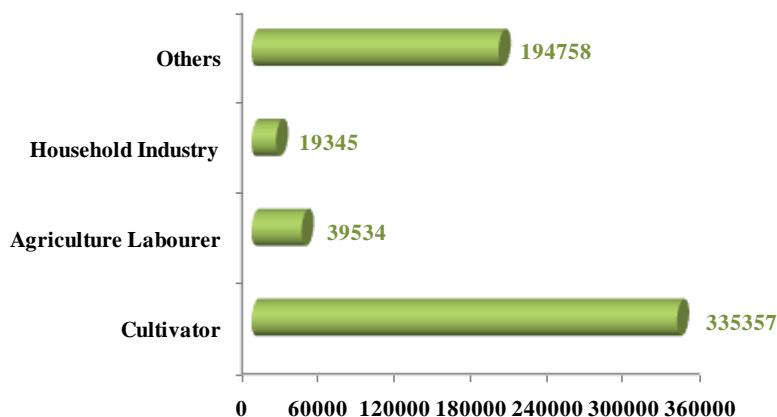


*Source: Employment Exchange Kangra as on 31.12.2006*

Based on the live register at the district employment exchange, there is a large number of people with minimal school education (10<sup>th</sup> or 12<sup>th</sup> Pass) but no vocational training.

ITI certificate holders are from non-engineering trades such as stenography, secretarial practice, beauticians are registered for employment in high numbers. For instance the highest number of applicants in the live register for Kangra belongs to Stenography (English). This is mainly due to limited requirements of stenos in government jobs and virtually no demand in the private sector.

Kangra has 336,649 main workers and 252,345 marginal workers. Owing to little urbanisation of the district, most of the workers are concentrated in rural areas and depend on primary sector for livelihood. Apart from cultivators, a significant proportion of the workforce comprise of agriculture labourers due to high acreage under cultivation and tea estates which require more employment apart from family members. Presence of industrial units has translated into local employment in district Kangra.

**Figure 18 Distribution of Workforce in Kangra**

Source: Factbook on manpower 2004-05, Govt of HP

### 2.7.4.5. Opportunities

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. **Small Scale Industries** – Kangra has a long border with Punjab with a relatively flat topography. The area can be developed to attract entrepreneurs from across the state to setup small scale units in the field of pharmaceuticals, food and food processing, sheet metal fabrication.
  - a) **Pharmaceuticals:** The district has already received around 25 proposals to setup small scale pharmaceutical units and has the potential to attract more firms from Punjab who are unable to acquire land in Baddi at reasonable prices.
  - b) **Agro-processing:** Kangra district has a large area under cultivation of wheat and maize and the produce can be used as raw material for agro-based industries such as flour mills.
  - c) **Sheet metal fabrication:** Kangra district has a large number of technical skilled manpower available and can be promoted as a preferred destination for setting up of small scale light engineering industries (rolling mills, manufacturing of motors, spare parts, ancillaries to support heavy engineering industries in Punjab etc)

Large scale units would not be very feasible because of prohibitive logistic costs of bringing raw material and shipping finished goods to bigger markets compared to other industrial areas in the state such as Baddi, Parwanoo and Una. Hence, small scale industries with focus on serving Punjab and Himachal Pradesh markets should be attracted.

2. **Financial Services:** Services based organisations such as banks and insurance companies are coming up in the towns of Dharamsala, Kangra and Palampur. There is potential for graduates to be absorbed in these sectors as direct sales agents, investment advisors, insurance agents etc. Government Degree College, Dharamsala has introduced a few add on courses such as e-commerce, risk management apart from BBA and regular graduation courses. These courses equip students with skills which are in demand in the service-based industry and help students get placed in banks, insurance and ITeS companies. Thus large scale training initiatives in related areas would help prepare a workforce for these service industries within the district and outside of it as well.
3. **Tourism:** Kangra has a lot of opportunities to offer in the area of tourism and substantial amount of employment can be created. The area has vast potential for eco tourism, leisure tourism and adventure tourism apart from religious tourism which can be harnessed with improvements in infrastructure.
  - Adventure such as hang gliding, para gliding and hand gliding can be promoted at Biling in Kangra, which has been repeatedly rated as one of the best sites for hang gliding in the world. The intake at Regional Mountaineering Centre to provide professional training in trekking, camping, rock climbing, water sports etc can be increased. Also, the government should spread awareness about the opportunities in tourism sector as well as take steps to ensure that only qualified tourism professionals are allowed to work. The present setup in the tourism sector is very informal and discussions with trek organizers have indicated a need for more qualified guides and instructors since the potential for adventure tourism is high in the district. Trekking and camping is an important activity in the area and attracts a lot of foreigners. Hang gliding is already an established sport in the district and is well promoted by HPTDC through annual international hang gliding competition.
  - Water sports – Maharana Pratap Sagar water reservoir on the river Beas can be developed into a venue for a variety of water-sports by segregating the area covered

into various zones for different activities. This would also provide employment opportunities which can be met by providing basic courses in safety and machine operation. Maharana Pratap Sagar reservoir has a wide variety of aquatic fauna including the rare mahaseer and can be promoted as a fishing destination. Water sports such as kayaking, canoeing, rowing, water skiing and boating can be promoted. The current infrastructure at Regional Water Sports Centre can be ramped up to meet the requirement of such professionals in the state.

The district is relatively well connected by road and air but lacks visibility in comparison with Shimla and Kullu. Hence, sustained promotion of the various tourism destinations, activities along with short-term courses in tourism and hospitality management should increase opportunities for employment.

4. **Dairy farming** – Kangra has a per capita availability of milk of 366<sup>7</sup> gms which is well below the average per capita for Himachal Pradesh. The total number of dairy animals in the district is 559252 which need to be increased through promotion of dairy farming to bridge the gap in supply and demand. Assuming average per capita consumption of 550 gms, the district needs an additional 281154 dairy animals at current productivity levels. For a unit size of 10 dairy animals, 28,115 households can be included for dairy farming.

## 2.7.5. Shimla

### 2.7.5.1. Demography

The total area of the district is 5131 sq. km. which constitutes 9.22% of the total area of the State. It is bounded by Mandi and Kullu from North, Kinnaur from East, Uttaranchal from South, and Sirmaur from West. It is situated at an altitude ranging from 300 to 6000 metres. The topology of the district is rugged and tough.

According to the 2001 census, the total population of the district is 721,745 with 380,244 males and 341,501 females. Shimla has the highest urbanisation in Himachal Pradesh due to heavy tourism in the district with approximately 23% of the population living in urban areas. The density of population is 141 per sq km of area.

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<sup>7</sup> Directorate, Department of Animal Husbandry, Himachal Pradesh



## 2.7.5.2. Literacy

According to 2001 census, the literacy rate in Shimla district was 79.1%. The distribution of literacy according to sex is as shown below.

**Table 16 Literacy Status in Shimla**

Literacy Status		
Persons	Male	Female
504,330 (79.1%)	293,745 (87.2%)	210,585(70.1%)

*Source: Census 2001*

Apart from government run primary and secondary schools, the district has about ten ITI / ITC offering 888 seats in different technical and vocational trades. The district also has one government polytechnic (100 seats) but no engineering college for high level technical education.

**Table 17 Education Infrastructure in Shimla**

Educational Institute	No. of institutes	Enrolment
Primary School	1614	64,897
Middle School	310	40,288
High School	333	46,194
Colleges	11	14,000

*Source: Government of HP, 2005-06*

## 2.7.5.3. Economy

The district economy is mainly dependant on agriculture and services sector comprising of trading activities and tourism. Industry is not well developed and consists of small scale units aimed at manufacturing small articles of daily needs.

### Industry

Shimla district has one industrial area at Shoghi. However, the hilly terrain has imposed restrictions on plot areas and hence, mainly small scale industries have been set up which do not have requirement for large tracts of flat lands. These industries do not have specific skill requirements and find it difficult to compete with well developed industrial areas in terms of attracting labour force. The principal issues hampering the growth of industrialisation in the district are:

1. Unprecedented growth in tourism has led to severe pressure on infrastructure in Shimla.
2. Limited number of technically qualified people for industrial sector.

Advantages offered by Shimla district:

1. Good civic facilities for middle and senior level employees of the manufacturing enterprises.
2. Horticulture produce can be leveraged to attract agri-procurement and agro-processing industries
3. Well connected with Chandigarh and Delhi by road and air

### **Agriculture & Allied**

The area under cultivation is 101160 hectares which is approximately only 19.7% of the total geographical area. The major crops are maize and wheat which contribute 76% to the total agricultural production. As far as horticulture is concerned, it is an important economic activity in the district and contributes significantly to district income. Apple is the main produce accounting for more than 96% of total horticulture produce in the district. The cool climate of Shimla is much more suitable for cultivation of apple as compared to the districts of Solan, Sirmour, Una and Kangra.

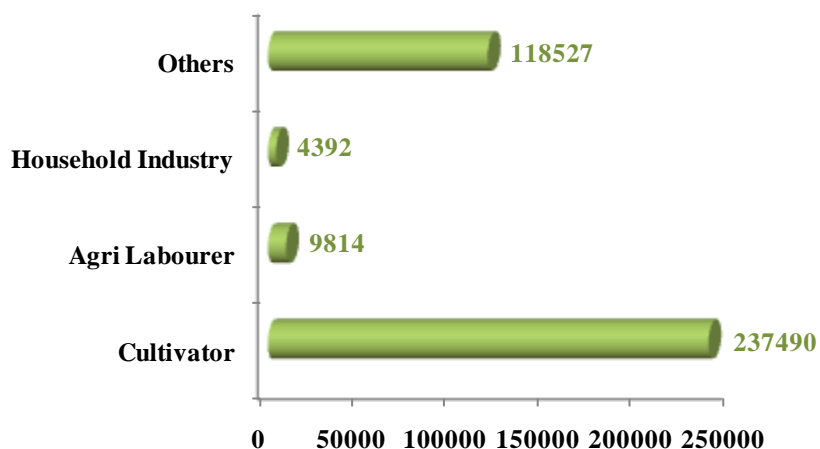
### **Services**

Shimla district received the highest number of tourists (25%) out of total domestic tourist arrivals in Himachal Pradesh in the year 2005-06. This has eventually led to transition of economy from agriculture to service based. Shimla is the single biggest tourist destination in Himachal Pradesh. Major tourist attractions include Shimla town, Kufri, Narkanda, and Sarahan. The district can also be developed as an important destination for service based industries such as ITeS owing to its vast pool of well educated youth and a well recognised education system.

## **2.7.5.4. Employment Scenario**

Shimla is not an industrialised district with the economy being heavily dependant upon tourism. Being the most populous district without substantial permanent employment opportunities (tourism and agriculture being seasonal industries), a high proportion of population (18.21% of the total population) is registered on the employment exchange as of 31.3.2006.

Shimla has main workforce of 305,709 and marginal workforce of 64514. The total worker population is either involved in agriculture or in other category which mainly involves employment in tourism and related activities.

**Figure 19 Distribution of Workforce in Shimla**

Source: Factbook on manpower 2004-05. Government of HP

### 2.7.5.5. Opportunities

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. **Tourism:** Tourism is a strong point for Shimla and though the district receives a fairly large amount of tourists, further promotion of niche activities such as adventure sports (Rock climbing, trekking, camping) and eco tourism would result in a higher inflow of tourists. The district can also be promoted for its exotic train ride from Kalka to Shimla, a scientific feat which has found mention in the World Heritage List.
2. **Information Technology:** Industry believes that population of Shimla town is better compared to other districts in terms of communication abilities. This advantage should be leveraged by attracting IT services companies to Shimla and investing in education infrastructure by introducing basic computer proficiency courses at school and college level. The government needs to introduce professional courses in colleges aimed at servicing BPO companies such as legal process outsourcing, medical transcription, payroll processing and tele marketing. There is a potential for growth of small IT firms which are essentially working on outsourced work from bigger firms or handling small projects. The government needs to improve and update the curriculum of various

computer courses being run in government colleges so that the students are able to keep themselves abreast with the latest advancements in the field.

3. **Agro-based** – The district has huge production of horticulture products primarily apples which offer significant opportunities in the area of agri-processing by setting up facilities for jams, juices, squash etc. Further the district provides important link between interior districts of Kinnaur, Lahaul with Punjab and Haryana. These interior districts are rich source of agriculture produce but do not warrant investments in any processing and storage facilities due to adverse climatic conditions, Thus Shimla can acts as a procurement and storage hub for their produce as it has year long connectivity with the national markets. Few players such as Adani Agrifresh and Reliance are making investments in supply chain infrastructure in the district.

## 2.7.6. Sirmour

### 2.7.6.1. Demography

Sirmour is surrounded by Solan district on the north and shares its boundary with Chandigarh, Haryana and Uttaranchal. It is one of the three districts to experience substantial industrialisation in the state, the other two being Solan and Una. The terrain is generally flat with a few areas having high mountainous slopes.

The district is spread over an area of 2825 sq. kms which is approximately 5% of Himachal Pradesh. According to the 2001 census, the total population of the district is 4,58,593 with 241,299 males and the 217,294 females. The district has a comparatively higher level of urbanisation with only 10.4% of the population residing in urban areas. The district has a population density of 162 persons per sq. km.

### 2.7.6.2. Literacy

According to 2001 census, the literacy rate in Sirmour district was 70.4% which is low compared to other industrialized districts in Himachal Pradesh. The distribution of literacy according to sex is as shown below.

**Table 18 Literacy Status in Sirmour**

Literacy Status		
Persons	Male	Female
274,643 (70.4%)	163, 415 (79.4%)	111,228 (60.4%)

*Source: Census 2001*

The district has network of primary and secondary schools run by the government to provide basic education to the local population. Apart from this, the district has about six ITI / ITC offering 512 seats in different technical and vocational trades. The district also has one government polytechnic with 120 seats and one private engineering college for high level technical education.

**Table 19 Education Infrastructure in Sirmour**

<b>Educational Institute</b>	<b>No. of institutes</b>	<b>Enrolment</b>
Primary School	965	48999
Middle School	171	32532
High School	122	23968
Colleges	5	3409

*Source: Government of HP, 2005-06*

### **2.7.6.3. Economy**

The population is fairly distributed amongst agriculture, industry and services sector (primarily public sector establishments). However, the service sector is yet to realise its full potential in the district particularly in the private sector services.

#### **Industry**

The district has few large and medium scale enterprises in textile, pharmaceutical and engineering sector. The development of industrial activity offers huge potential in the district owing to its proximity to developed states of Haryana and Punjab.

Sirmour has two main industrial areas at Paonta Sahib and Kala Amb. The Kala Amb has more number of industries and consequently faces huge pressure on limited infrastructure. It has poor roads and no civic amenities which are acting as a deterrent to its growth. Paonta Sahib on the other hand has fewer industries and relatively plain topography. Civic infrastructure is the biggest problem in Paonta Sahib and employees have to arrange for alternate housing in Dehradun which is 40 kms away. The principal issues hampering the growth of industrialisation in the district are:

1. Lack of infrastructure in the industrial areas in Kala Amb and Paonta Sahib.
2. Poor state of civic amenities such as housing, schools, medical facilities in the towns of Paonta Sahib and Kala Amb forcing medium and senior level employees to arrange for accommodation in Dehradun and Yamuna Nagar.

3. Increased cost of living forces entry level employees to quit and return to their home towns as savings are not adequate.

Advantages offered by Sirmour district are:

1. The low lying areas of Paonta Sahib and Kala Amb have availability of land for setting up of Medium and Large scale industries.
2. Access to markets such as Chandigarh, Haryana and Uttaranchal.
3. Education infrastructure can be expanded by drawing qualified faculty from nearby developed towns such as Chandigarh and Dehradun.

### **Agriculture & Allied**

The area under cultivation is 74702 hectares. The major crops are maize and wheat which make up for 88% of the total food grain production. Area covered under horticulture is 15161 hectares and the main fruits produced are peach and mango.

### **Services**

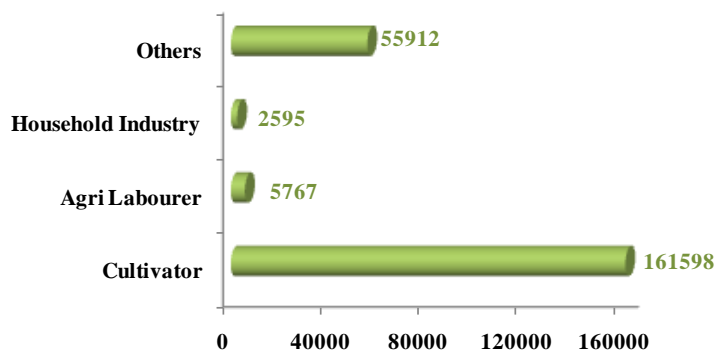
Sirmour is not a major tourist destination though some destinations have been promoted. Overall, the district received 5.9 % of the total tourist arrivals in Himachal Pradesh. Renuka Ji and Paonta Sahib are the two main destinations for religious tourism.

## **2.7.6.4. Employment Scenario**

The district has experienced a fair amount of industrialization and hence the unemployment scenario is better than other districts. About 10.8% of its population is registered on district employment exchange, primarily comprising of 10<sup>th</sup> /12<sup>th</sup> pass-outs but without any formal technical training.

Sirmour has 175913 main workers and 49959 marginal workers. On account of some industrialisation in the district, the proportion of urban workforce is higher than many other districts.

Though, there is high involvement of the workforce in agriculture and related activities, local industries provide significant employment opportunities. Sirmour exhibits a higher percentage in the others category (25%) implying employment generated in industries.

**Figure 20 Distribution of Workforce in Sirmour**

Source: Factbook on manpower 2004-05, Govt of HP

### 2.7.6.5. Opportunities

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. **Engineering Manufacturing:** This sector is present in the Industrial Areas of Paonta Sahib and Kala Amb but the manufacturing activity is primarily concentrated at the lower end of the value chain. Most of these are rolling mills, manufacturing of cylinders, fabrication units. The district needs to attract investments at the higher end of value chain in IT hardware, electrical and electronics, auto ancillaries which Solan district has been able to attract. Sirmour has the required human resources supply from its technical institutions. Further, the two engineering colleges at Sirmour can provide skilled human resources required to attract industries in high –end manufacturing sectors.
2. **Agro-based Industries:** Sirmour has only one company in agro-processing. However, the area is suitable for mushroom, potato and vegetable cultivation. The state government should pursue setting up of more agro-based industries for packaging as well as processing of agri-produce. These industries could set-up base for meeting the domestic requirements or for overseas supplies. The highly skilled human resources for crop selection, preventive care, training to local farmers on post harvest practices and processing & storage practices can be sourced from horticulture and agriculture university in the other districts of the state.

3. **Pharmaceutical:** Sirmour also has only two pharmaceutical companies at Paonta Sahib. Ranbaxy pharmaceutical has been operating its manufacturing facility for a long time even before the New Industrial Policy was announced and has established deep roots in the district which can be leveraged to attract further investment from exiting players in research and development initiatives and from new players in manufacturing operations. The main problems faced by the industry are related to acquisition of land and lack of infrastructure in terms of roads and connectivity. Hence, the district administration needs to chalk out new industrial areas with proper infrastructure which currently acts as a deterrent for attracting further investments.
  
4. **Tourism:** The tourism in Sirmour can be developed around the religious theme as the district houses some of the prominent places of religious interests for Hindus and Sikh. Its close proximity to Haryana and Dehradun (Uttaranchal) offers the opportunity to attract tourists from these places for a day-long visit to the Gurudwara Poanta Sahib, Renukaji Temple and Trilokpur Temple. The district can be promoted as a tourist circuit with Paonta Sahib, Nahan and Renukaji forming a triangular route with a short distance of approximately 120 km. Dehradun (Uttaranchal) is a prominent tourist destination and co-promotion of religious sites in Sirmour along-with the neighbouring state would help attract more tourists to the district and contribute significantly towards employment generation.

## 2.7.7. Solan

### 2.7.7.1. Demography

The District is bounded by Shimla from North, Ropar (Punjab) and Ambala (Harayana) in the south, Sirmour in the East and Bilaspur in the West. The elevation ranges from 300 metres to 3000 metres above sea level.

The total geographical area of the district is 1,936 sq. km which constitutes 3.49 percent of the total area of the State. According to the 2001 census, the total population of the district is 500,557 with 270,291 males and 230,266 females. Solan has a fairly high amount of urbanisation compared to other districts at 18.2% with Solan and Baddi as the two most populous towns. The population density of Solan is 258.6 per sq. kms.



### 2.7.7.2. Literacy

According to 2001 census, the literacy rate in Solan district was 76.6%. The distribution of literacy according to sex is as shown below:

**Table 20 Literacy Status in Solan**

Literacy Status		
Persons	Male	Female
332,410 (76.6%)	199,444 (84.8%)	132,966 (66.9%)

*Source: Census 2001*

Apart from government run primary and secondary schools, the district has about nine ITI / ITC offering 808 seats in different technical and vocational trades. The district also has one government polytechnic (160 seats), one private polytechnic (300 seats) and three private engineering college for high level technical education.

**Table 21 Education Infrastructure in Solan**

Educational Institute	No. of institutes	Enrolment
Primary School	756	43,616
Middle School	157	27,862
High School	175	34,577
Colleges	4	5,181

*Source: Government of HP, 2005-06*

### 2.7.7.3. Economy

Solan is the most industrialised district of the state and prime beneficiary of the New Industrial Policy announced in January 2003. Prior to the announcement of New Industrial Policy, the district had a few large and medium scale enterprises in the engineering and textile sectors.

#### **Industry**

Solan has two main industrial areas at Baddi and Parwanoo. Parwanoo is the original Industrial Area and has companies which have been setup long before the implementation of New Industrial Policy in 2003. However, the infrastructure at the industrial areas has not kept pace with industrialisation and the condition of basic amenities such as housing and roads have deteriorated. This has forced the local population employed at entry level to return to their hometowns as they find it difficult to sustain at the existing wage levels. The principal issues hampering the growth of industrialisation in the district are:

1. Lack of infrastructure in the industrial areas of Parwanoo and Baddi.
2. Poor state of civic amenities such as housing, schools, medical facilities in the towns of Parwanoo and Baddi forcing medium and senior level employees to arrange for accommodation in Chandigarh and Panchkula.
3. Increased cost of living forces entry level employees to quit and return to their home towns creating problem for the industries as well
4. Massive industrialisation has led to scarcity of land thereby raising land prices and making the ventures unviable.

Advantages offered by Solan district are:

1. Proximity to Punjab / Haryana results in low transportation costs.
2. Presence of institutes of higher learning can ensure a steady supply of skilled manpower.

### **Agriculture & Allied**

Though the industry has grown at a faster pace, this does not eliminate the importance of agriculture as a significant source of livelihood for local people. The area under cultivation is 63900 hectares which is approximately 34% of the total geographical area. The major crops are maize, wheat and rice which make up for 97% of the total food grain production. Area covered under horticulture is 6602 hectares (3.51% of the total area) and the main fruit produced is mango, apricot and pear.

### **Services**

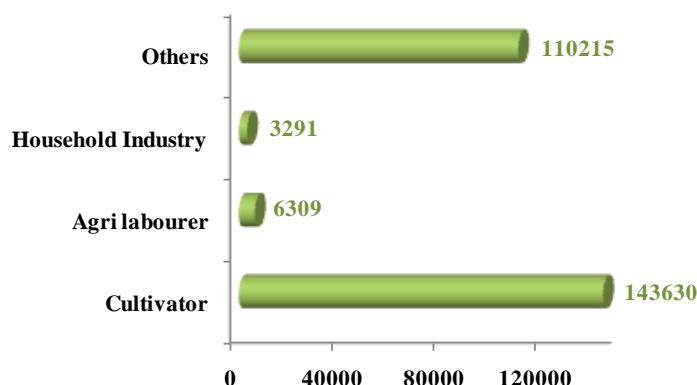
Solan has some popular towns such as Chail, Kasauli and Barog. However, the district received only 4.4% of the total tourist arrival in Himachal Pradesh in the year 2005-06. Solan is a major transit point for all the tourists travelling by road to Shimla and hence offers immense opportunity to be developed as an entertainment destination. Apart from this, the development of IT Park at Wagnaghat can provide a fillip to district economy by attracting large players in ITeS sector which can boost the employment opportunities through direct and indirect opportunities.

#### **2.7.7.4. Employment Scenario**

As of 31<sup>st</sup> March 2006, 48118 applicants were on the live register which translates to only 9.61% of total population of the district.

Solan has 172,274 main and 91,171 marginal workers. The distribution of total workforce under various occupations is as follows:

**Figure 21 Distribution of Workforce in Solan**



*Source: Factbook on manpower, Government of HP, Year 2004-05*

The district has a sizeable chunk of the working population involved in agriculture and related activities. However local industries provide a significant source of employment to local population as is evident from the employment pattern. The proportion of workers engaged in industrial establishments is highest at 42% as compared to all other districts.

### 2.7.7.5. Opportunities

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. **Information Technology:** IT has risen to become one of India's biggest growth industry. However, with increasing cost of living in the bigger cities, IT and ITES companies are increasingly expanding in Tier II cities to take advantage of low costs. As a result, Himachal Pradesh placed ideally to take advantage this opportunity. Historically, the IT industry at any place has usually evolved from being a volume based, low value addition service provider to solutions and products provider. Hence, the government needs to initially focus on attracting IT Enabled Service companies. The first step has been taken in identifying site for an IT park at Wagnaghat, Solan. ITES companies would help in absorbing graduates of degree colleges which contribute highly to the unemployment pool. However, industry feedback has indicated that these graduates do not

possess the requisite communication skills as well as functional knowledge to work in BPO companies.

2. **Pharmaceutical:** Pharmaceutical industry is an important source of income and employment in the district. However, most of the large industries are engaged in formulation manufacturing with limited focus on research and development. Setting up of a research institute would encourage pharmaceutical industry to move up the value chain from formulation to new drug discovery. A research institute would act as a source of supply of highly skilled manpower for functioning of R&D department. The decision of the government to set-up a Pharma Park in Baddi is a decision in the right direction and would go a long way in attracting further investments in the district.
3. **Engineering:** Himachal is uniquely positioned to attract companies engaged in manufacturing of electronics and related equipments, especially in the area of chip manufacturing. These industries require uninterrupted supply of electricity and water which are available in plenty in the state. Further, the salubrious climate can also act as a positive factor in attracting investments in electronics, IT hardware and electrical sector. Large scale investments in hydro power projects and construction projects is expected to generate large scale demand for engineering goods in the state which can be met from within the state by attracting such companies engaged in manufacture of engineering goods to set up production facilities in the state.
4. **Textile:** Though textile industry is present in the district for a long time, it is still in its infancy in terms of output and value chain of the industry. Most of the textile mills are spinning units being set-up by industrial houses of Punjab which manufacture yarn for integrated textile plants of Punjab. The efforts should be made to increase investments in integrated textile mills which involve weaving and garmenting operations too. This shall help generate more output and employment for local economy.
5. **Tourism:** Solan can be developed as entertainment hub aimed at transit tourist travelling by road from Delhi and Chandigarh to Shimla. The towns of Chail and Kasauli also need to be promoted more aggressively as tourist destinations. This would directly lead to an increase in demand for tourist guides, taxi drivers as well as professionals in hospitality. Kasauli, a small town with a colonial ambience, can be promoted as a leisure destination for naturopathy with scores of little gardens and orchards, serene atmosphere and quiet environment. Chail has the world's highest cricket pitch and a polo ground but lacks hospitality infrastructure which can be boosted to promote it as a stand-alone destination among sport enthusiasts.

## 2.7.8. Una

### 2.7.8.1. Demography

Una situated in the south western part of Himachal Pradesh bordering Punjab and one of the few districts connected with rail to Nangal in Punjab. It was created after reorganization of Kangra into three districts of Una, Hamirpur and Kangra in September 1972.

The district covers an area of 1549 sq. km out of which 430 sq. km is cultivated. According to the 2001 census, the total population of the district is 448,273. The male population is 224,524 and the female population is 223,749.

### 2.7.8.2. Literacy

Una is the second most literate district in Himachal Pradesh with a literacy rate of 80.4%, according to 2001 census.

**Table 22 Literacy Status in Una**

Literacy Status		
Persons	Male	Female
312,278 (80.4%)	168,450 (87.7%)	143,828 (73.2%)

*Source: Census 2001*

The district has well-spread network of primary and secondary schools run by the government to provide basic education to the local population. Apart from this, the district has about nine ITI / ITC offering 544 seats in different technical and vocational trades. The district also has one government polytechnic with 160 seats and one private engineering college for high level technical education.

**Table 23 Education Infrastructure in Una**

Educational Institute	No. of institutes	Enrolment
Primary School	506	38480
Middle School	114	25769
High School	148	28257
Colleges	7	6180

*Source: Government of HP, 2005-06*

### **2.7.8.3. Economy**

The district economy till recently has been an agriculture driven economy but the announcement of New Industrial Policy has increased the pace of industrial development in the district.

#### **Industry**

Una currently has four industrial areas namely Tahliwal, Gagret, Amb and Mehatpur. Out of these, Mehatpur is the oldest industrial area but consists of only small scale industries. Tahliwal, Gagret and Amb are the upcoming industrial areas and a few medium and large scale projects such as International Cars and Motors Limited, Luminous Batteries, Deepak Fasteners etc have been setup. The principal issues contributing to lack of industrialization in the district are:

1. Lack of availability of quality manpower
2. Under-developed industrial areas with sub-standard infrastructure and absence of basic civil amenities.

Advantages offered by Una district:

1. Large and contiguous tracts of flat land are available thus medium and large scale industries can be set up.
2. Land is available at lower prices and cost of living in Una is not as high as developed industrial areas of Himachal such as Baddi.
3. The district has a rail head which can reduce logistic costs for raw material as well as finished goods.
4. Proximity to Punjab will provide speedy and relatively faster access to raw materials as well markets.
5. Proximity to Nangal township can be leveraged to attract industries as Nangal is a growing township with all modern civic amenities.

#### **Agriculture & Allied**

The district has approximately 22% of the area under cultivation. The major crops being produced are maize and wheat which contribute approximately 97% to the total crop production.

As far as horticulture is concerned, a total area of 5035 hectares is cultivated which is only 3.2% of the total district area. The main fruits being produced are Mango, Orange and Pear.

### **Services**

Una is not a major tourist attraction. Majority of the tourist arrival is driven by visit to temples such as Chintpurni. It is an important transit point for tourists coming by road from Punjab and travelling to Kangra. The district received only 2.6% of the total domestic tourist arrivals in Himachal Pradesh in the year 2006.

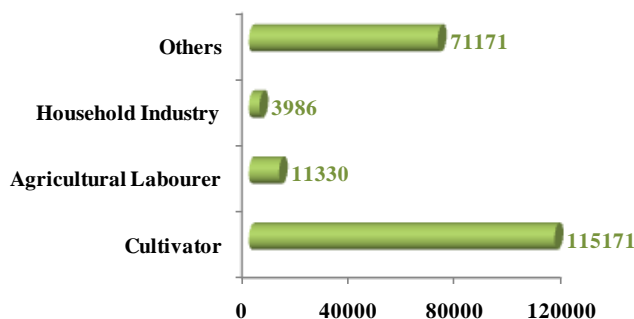
### **2.7.8.4. Employment Scenario**

The district has a good number of medium and few large scale industries. About 13.5% of its population is registered on district employment exchange, primarily comprising of 10<sup>th</sup> /12<sup>th</sup> pass-outs but without any formal technical training.

Una has 119050 main workers and 82608 marginal workers. On account of some industrialisation in the district, the proportion of urban workforce is higher than many other districts.

Though, there is high involvement of the workforce in agriculture and related activities, local industries have come to be established as an important source of livelihood for local population.

**Figure 22 Distribution of Workforce in Una**



*Source: Factbook on manpower 2004-05, Govt of HP*

### **2.7.8.5. Opportunities**

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. **Medium and Large Scale Industries:** Una shares border with Punjab and has relatively flat topography. The area can be developed to attract industries in the sectors of automobile and ancillary units, agro based industries such as biscuits, sugar and starch production, light engineering units and textile units.
  - a. Automobile: International Cars and Motors Ltd has setup an integrated manufacturing facility at Amb Industrial Area. This would create opportunities for ancillary units to be setup in the district. However, the industry is experiencing shortage of skilled manpower, especially at operator level (ITIs in welding, turning, motor mechanic).
  - b. Agro-based industries: Wheat and maize are produced in substantial quantity in the district and can be used as raw material for use in production of biscuits, starch, and molasses.
  - c. Textiles: Though not many textile mills are currently in operation, the large industrial areas and proximity to Punjab can be utilised to attract investments in this industry. Availability of large tracts of flat land can be used to set up large scale integrated textile units in the district.
2. **Light engineering:** Una has a lot of companies engaged in a variety of light engineering sectors such as manufacturing of LPG cylinders, Mild steel bars, Batteries and Inverters etc. These companies essentially require semi-skilled and unskilled workers in large quantities. Discussion with the industries has indicated that the current skill levels in the working population are not upto the desired levels as students lack in practical knowledge about machinery.
3. **Service based organisations:** such as banks, insurance companies are coming up in the town of Una. There is potential for graduates to be absorbed in these companies as direct sales agents, investment advisors, insurance agents etc. Since, growth of this sector is strongly correlated to economic growth in agriculture and industry, increased industrialisation would serve as driver for these industries in two ways:
4. **Dairy farming:** Una has a per capita availability of milk of 395<sup>8</sup> gms which below the average per capita for Himachal Pradesh. The total no. of dairy animals in the district is 181988 which need to be increased through promotion of dairy farming to bridge the gap in supply and demand.

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<sup>8</sup> Directorate, Department of Animal Husbandry, Himachal Pradesh



Assuming average per capita consumption of 550 gms, the district needs an additional 71413 dairy animals at current productivity levels. For a unit size of 10 dairy animals, 7141 households can be included for dairy farming.

5. **Tourism:** The district has few attractions for religious travellers such as Dera Baba Bharbhag Singh and Chintpurni Temple. These places are frequented by thousands of devotees every year. However lack of hospitality infrastructure deters many people from visiting these places. Further, event based marketing during festival season can help improve the tourist inflow to Una.

## **2.7.9. Lahaul and Spiti**

### **2.7.9.1. Demography**

Lahaul and Spiti is a rugged, mountainous district. The district was originally a part of Kullu, which itself belonged to Kangra district. Lahaul and Spiti was awarded the status of district in 1960 with Keylong as district headquarters and Spiti was formed into a sub-division with headquarters at Kaza.

The district covers an area of 13,833 square kms. However, due to the rugged terrain and unfavourable weather conditions, area under cultivation is limited to 30.43 square kms.

This is the least populated district in the state with a total population of 33,224. The number of males is 18,441(55.51%) and number of females is 14,783(44.49%).

### **2.7.9.2. Literacy**

According to Census 2001, the district has a literacy rate of 73.1%. However, there is a wide disparity with male literacy at 82.76% and female literacy at 60.94%.

The district has a reasonable infrastructure of primary, middle and high schools. However, for higher education, students have to move out to other districts in the state as no centres of technical education are present.

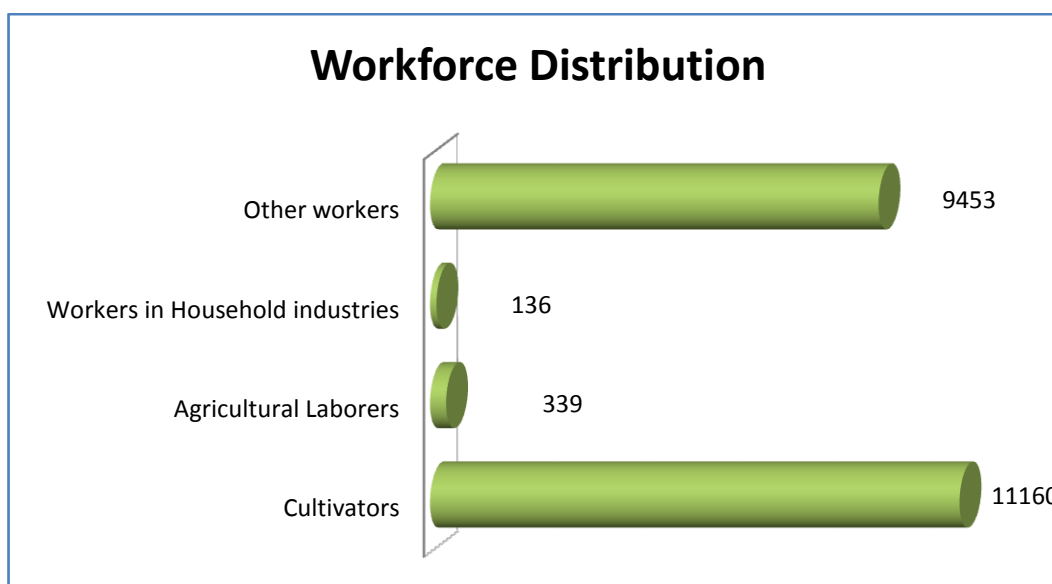
**Table 24 Education Infrastructure in Lahaul and Spiti**

Educational Institute	No. of institutes
Primary School	205
Middle School	33
High School	29
Colleges	1

The district has two ITIs at Udaipur and Kaza respectively. The district has 15 seats allotted in other ITIs throughout the state which is the main reason for low enrolments witnessed in these ITIs.

### 2.7.9.3. Economy

The district economy is still primarily agrarian. Unfavourable geography and weather conditions have inhibited industrial growth in the region. However, local population is involved in traditional handlooms activity. The district does have presence of micro industries but these are essentially for local consumption.

**Figure 23 Distribution of Workforce in Lahul & Spiti**

## **Agriculture and Allied**

The district has barely .33% of the area under cultivation. The main crops produced are potatoes, peas and hops. These are cultivated as cash crops and provide substantial income to the local population.

Apple cultivation has been initiated in the district and area under cultivation has been growing at a CAGR of 32% during 2002-07. Other fruits being produced are apricot and almonds.

## **Service**

The growth of service industry is still at early stage. However, tourism holds substantial potential in the district and can be tapped for employment generation, local as well as outside.

### **2.7.9.4. Opportunities**

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

**1. Agriculture** – See buckthorn is an important natural resource and is being cultivated. The plant is able to withstand extreme weather conditions as well as adapt to cold deserts. The plant has numerous applications in medicine, food, cosmetic products etc.

The area under cultivation needs to be increased with Department of Agriculture providing technical inputs in terms of seeds, information on sowing, cultivation and harvesting practices and provision of incentives in terms of subsidies. Further, promotion of usage of glasshouses and polyhouses should also be undertaken to facilitate cultivation of crops despite harsh weather conditions.

Efforts are also being made to utilize tissue culture for better yielding varieties of plants. The Horticulture department regularly conducts various meetings and knowledge transfer sessions on new varieties of crops, methods of cultivation, fertilizers etc. In 2007, the Dept. has organized 6 divisional level camps.

**2. Tourism** – The district offers numerous opportunities for adventure and religious tourism. The rugged terrain can be used to promote activities such as trekking, mountaineering, rock climbing and mountain biking. Further, the district presents tremendous opportunities for promoting Buddhist tourism as lot of monasteries and gompas are present in Lahaul and Spiti valleys.

Keylong in Lahaul valley lies on the Manali-Leh route and should be promoted as an important stop-over with avenues for adventure and religious tourism. The district received only 83632 tourists in the year 2006 which is a miniscule 1% of the total tourist arrivals in the state, thereby indicating a substantial potential for the development of the industry.

## 2.7.10. Kinnaur

### 2.7.10.1. Demography

Kinnaur is the other district classified as tribal area in the state of Himachal Pradesh. The district is surrounded by Tibet to the east and the terrain is primarily mountainous with several high altitude ranges such as Zaskar and Greater Himalayas.

The district is accessible only by road and is quite far from mainland. The lack of connectivity is an important issue contributing to almost negligible industrialization as well as lower tourist arrivals.

Kinnaur is also a sparsely populated district with a total population of 78,334 and a population density of 12 persons per sq. km. Male population is 42,173(53.8%) and female population is 36,161(46.2%).

### 2.7.10.2. Literacy

According to Census 2001, the district has a literacy rate of 75.11%. The distribution of literacy is as shown below:

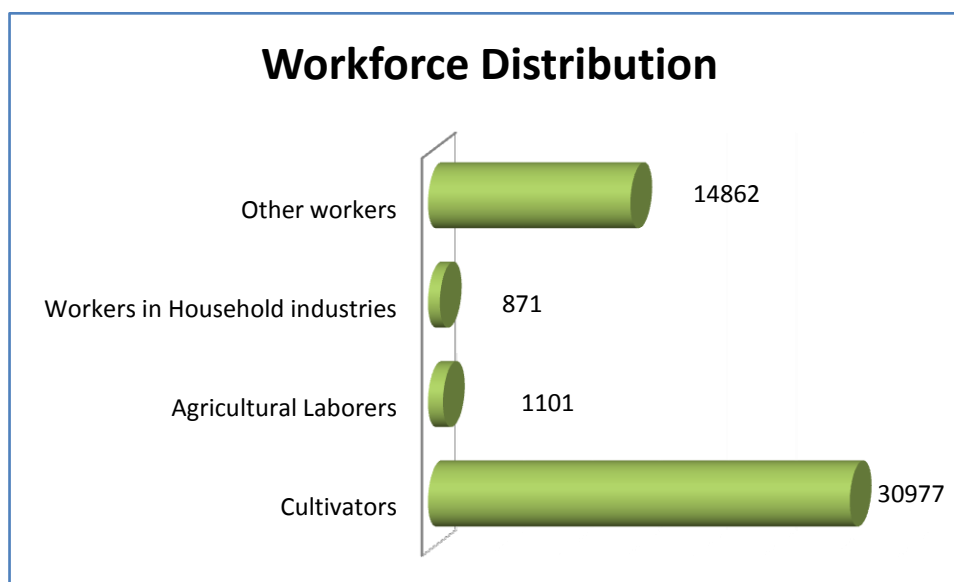
**Table 25 Literacy status in Kinnaur**

Persons	Male	Female
58,839 (75.1%)	35,551 (84.4%)	23,287 (64.4%)

The district has relatively fewer educational institutes with 190 primary schools, 37 middle schools, 40 high and senior secondary schools and 2 colleges.

### 2.7.10.3. Economy

The district economy is primarily agrarian with apple being a major produce. The climate is highly suitable for horticulture and apples, chilgoza and apricots are quite famous the world over.

**Figure 24 Distribution of Workforce in Kinnaur**

### **Industry**

The mountainous terrain and presence of Sutlej river also offer tremendous opportunities for hydel power generation which has emerged as a new avenue for employment. Some projects have already been initiated on Sutlej river. However, these have not been able to generate enough employment for the local population due to lack of requisite skills and a reluctance to work in challenging conditions.

### **Agriculture and Allied**

Kinnaur district is famous for apple production and the total production for the year 2006-07 was recorded at 40277 M.T which is quite close to Kullu district. The total area under cultivation however is only 9355 hectares due to the mountainous terrain.

Agri procurement is an important activity in the district. The difficult terrain, extreme weather conditions and poor connectivity dissuade setting up of fruit processing units

### **Service**

Fragmented population has discouraged growth of service industry in a reasonable way. However, opportunities for Tourism abound in the district. Destinations such as Kalpa, Nichar, Sangla valley etc can be promoted to increase tourist arrivals for leisure as well as adventure tourism.

## 2.7.10.4. Opportunities

**1. Hydel power** – The district has vast potential in hydro power generation with the Sutlej basin being the biggest source of hydropower in Himachal Pradesh. Various projects have already been initiated and more are in pipeline for hydel power generation. Amongst the projects which have already begun, the employers have faced problems in recruiting the appropriately skilled local manpower and hence, most of the employees, especially at lower level belong to other states.

Hydel power has been recognized as an opportunity throughout the district and hence, training of local manpower in short-term courses such as blasting, drilling, heavy earth moving machinery, concreting etc.

**2. Tourism** – The district offers tremendous scope for adventure sports such as camping, trekking, mountaineering and rock climbing. Skiing as an avenue can also be explored for development. The district needs to be promoted aggressively by Dept. of Tourism, Himachal Pradesh as presently there is not enough information or brand recall of the various destinations amongst tourists, domestic as well as foreign.

**3. Handloom** – Kinnaur has a strong presence of traditional handlooms and Kinnauri caps are quite famous within the state. However, products such as Kinnaur caps and shawls need to be marketed aggressively outside the state in other states in North and North East India. This would provide an alternate source of employment to the local population during winter months where industrial activity/other occupation becomes difficult due to extreme cold.

## 2.7.11. Kullu

### 2.7.11.1. Demography

Kullu district was functioning as a sub-division of Kangra district till it was separated and formed as a new district in 1963. The district covers a total area of 5503 sq. kms and is a popular tourist destination with destinations such as Kullu, Manali, Rohtang Pass.

The district is fairly well-connected with road to Shimla and Bilaspur and has an airport at Bhuntar. Kullu is also widely known for traditional handloom products such as Kullu shawls. The shawls are marketed under various co-operative societies but the business has started experiencing stagnation in terms of growth.

### 2.7.11.2. Literacy

According to the 2001 census, literacy rate and distribution in Kullu district was as shown below:

**Table 26 Literacy status in Kinnaur**

Total	Male	Female
72.9%	83.98%	60.88%

The district has a fairly well distributed network of schools and colleges. The details of the same are given below:

**Table 27 Educational infrastructure in Kinnaur**

Educational Institutes	Number
Primary Schools	727
Middle Schools	107
High School	49

Senior Secondary	31
Colleges	2
ITIs	1

Apart from the above, Kullu district has Western Himalayan Mountaineering Institute (WHMI) also known as Department of Mountaineering and Allied Sports. The institute provides training courses in various adventure sports such as mountaineering, trekking, skiing and white water rafting.

### **2.7.11.3. Economy**

The district economy is mainly dependant upon agriculture and tourism with some amount of industrial activity. The district has only 2 Medium and Large scale units though a large number of small scale units are present which cater to the local demand.

#### **Industry**

The district does not have much industrial activity and the biggest industrial unit is in the field of production of mineral water and other agro-based products. Many small scale units are present in the fields of mineral water production, agro-processing, steel fabrication, carpentry etc. The small units mainly cater to demand from local population or demand from tourist arrivals. Time taken for transportation of raw materials and finished goods to and fro outside the state is cited as the main reason for slow industrial growth.

Handlooms are another important activity in the district with 347 weaver members and turnover of Rs 635 crores for the year 2006-07. The products include shawls, stoles, mufflers, ponchos, caps and other handicraft readymade garments.

#### **Agriculture and Allied**

Kullu district is the second biggest producer of apples in the state after Shimla. The total area under cultivation is 363.42 sq. kms. Apart from apples, plums and pears are other important horticulture produce of the district. However, no industry exists in the field of agro-processing even though excess



supply of apples and other produce during peak season is sold at markets in Shimla and outside the state at much lower prices.

### Service

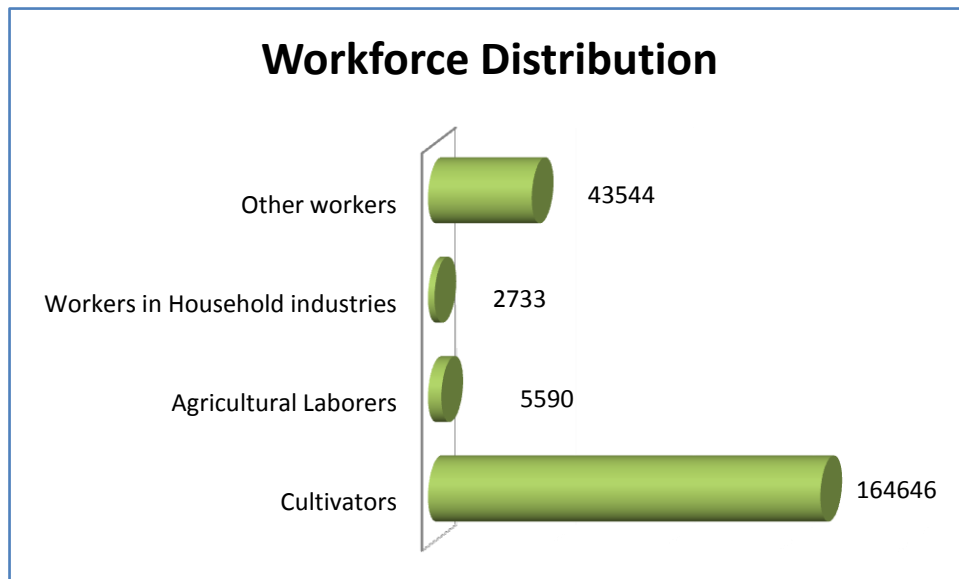
Tourism is an important business activity in the district providing employment to local population. Kullu valley and Manali are fairly popular tourist destinations and hold potential for further value addition in terms of promotion of adventure sports as well as rural tourism.

The district has a reasonable amount of trade activity but lack of sizeable population restricts the potential for development of service based industry apart from tourism.

### 2.7.11.4. Employment Scenario

Kullu is not an industrialized district with the local population involved in either agriculture or tourism for livelihood. Total main workers in the district are 166715 and marginal workers are 49798.

**Figure 25 Distribution of Workforce in Kinnaur**



The district has approximately 10% of the population registered at employment exchange. Approx. 85% of the registered population is matric pass and above indicating availability of reasonably literate manpower.

### **2.7.11.5. Opportunities**

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

**1. Tourism:** Kullu district is very popular amongst domestic and foreign tourists and offers options for leisure as well as adventure tourism. Kullu received approximately 24.6% of the total tourist arrival in the state, next only to Shimla. However, tourism as an industry is still not structured and various potential areas such as rafting, para gliding, skiing etc are underutilized. Further, the district administration is only selectively allowing new hotel properties to come up to preserve the natural beauty of the area. Hence, adventure sports offer a unique opportunity to provide value addition to tourists and hence needs to be promoted aggressively. The district has the required natural endowments but lack of properly trained manpower has resulted in under development of these opportunities. Further, WHMI offers courses in all adventure sports except hang gliding and para gliding due to lack of trained faculty.

**2. Agro Processing and Agri-procurement:** The district is a fairly large producer of apples and during peak season, surplus apple is sold at outside markets at fairly low prices. Hence, processing of agro products can be encouraged in the district for value addition and better price realization for the apple producers. Similarly, the district offers scope for setting up of industries in the field of Ayurvedic products.

**3. Handlooms:** Kullu handlooms are famous all across the country and abroad for their fine quality and workmanship. However, the various co-operative weaving societies have not been able to bridge the demand – supply gap due to limited workforce. The increased demand is being catered to by cheaper products from neighbouring states. Due to this, the handloom industry is becoming less profitable and lesser manpower is entering into the business. Thus, the industry needs to be incentivized by the government so that more people are encouraged to join the workforce. Also, more aggressive marketing by a centralized agency will make more people aware of the traditional handloom, helping in increasing revenues.

**4. Light engineering:** Setting up of industries in agro-processing and procurement would increase demand for packaging industries. We foresee employment potential in setting up of carton manufacturing industries to cater to demand from Kullu and Lahaul and Spiti districts.

## 2.7.12. Mandi

### 2.7.12.1. Demography

Mandi district was formed with the merger of two princely states Mandi and Suket in the year 1948. The district is bounded by Kullu, Bilaspur and Shimla. It is spread over an area of 3950 sq. Kms with a population of 776372. The district has a contribution of 15% to the state population, next only to Kangra which has 22.7% of the state population. Further, the industrial activity is not very predominant. Hence, it is an important source of skilled and unskilled manpower to other districts in the state.

The district is a transit point for tourists on the way to Kullu Manali from Shimla or Bilaspur. However, the tourism appeal of the district is negligible in spite of some scenic places. Further, due to lack of large scale industrial activity, the biggest employment avenues are agriculture and recruitment in the Indian Army.

### 2.7.12.2. Literacy

The district has a fairly literate population with a literacy rate of 75.2%. The distribution of literate population is as shown below:

**Table 28 Literacy status in Mandi**

<b>Total</b>	<b>Male</b>	<b>Female</b>
<b>587884(75.2%)</b>	<b>331171(85.9%)</b>	<b>256713(64.8%)</b>

The district has a good network of educational institutions including schools and colleges. The data for educational institutions and enrolment is as indicated below:

**Table 29 Educational infrastructure in Mandi**

Type of institute	Number	Enrolment
Primary School	1705	96353
Middle School	254	58145
High School	145	30557
Senior Sec. School	75	17549
Colleges	7	11927
Sanskrit College	1	
Training Institute	2	

### 2.7.12.3. Economy

The district economy is primarily agrarian with the industrial activity mainly present in small scale and catering to the local demand. The district has few industries present in agro-processing and pharmaceuticals but geographical constraints and lack of railroad connectivity have acted as impediments to industrial growth.

#### Industry

The district does not have many medium and large scale industrial activity mainly due to geographical constraints and lack of rail road connectivity which pushes up transportation costs. The small scale units are mainly present in steel and wooden fabrication, auto repair, electrical and electronics repair etc. In fact, Mandi has the maximum number of units in the state in Steel furniture and fabrication business. Total small scale and micro units are about 2760 in number. The district has very few medium scale industries but it faces competition from Bilaspur in attracting investments.

## Agriculture and Allied

The main crops being produced in the district are wheat, maize and rice. The total area covered by these three crops is 94% of the total area sown under crops. Apple is the main fruit produced along with pears, plum, mango and some citrus fruits, though production is quite less as compared to Kullu.

## Service

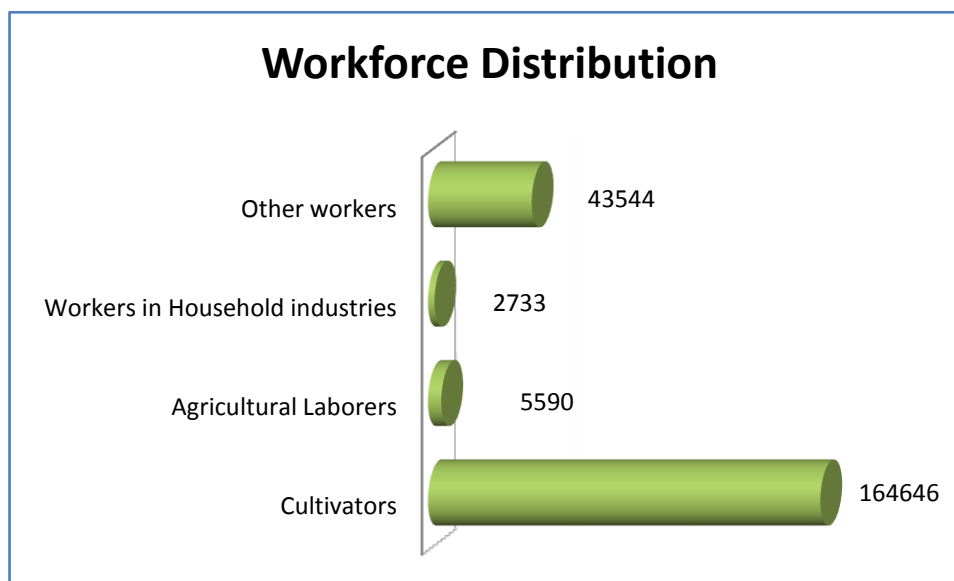
The district has a fair amount of trade activity on account of a sizeable population. Going further, economic growth will drive growth in service based industry such as banks, insurance, retail. However, the district does not enjoy a sizeable tourist footprint and received only 4.5% of the total tourist arrivals in 2006.

### 2.7.12.4. Employment Scenario

Lack of industrial activity indicates that the population would be mainly employed in agriculture and allied activities. However, similar to Hamirpur, a part of the local population is recruited in the Indian Army.

The workforce distribution in the district according to Census 2001 is as indicated below:

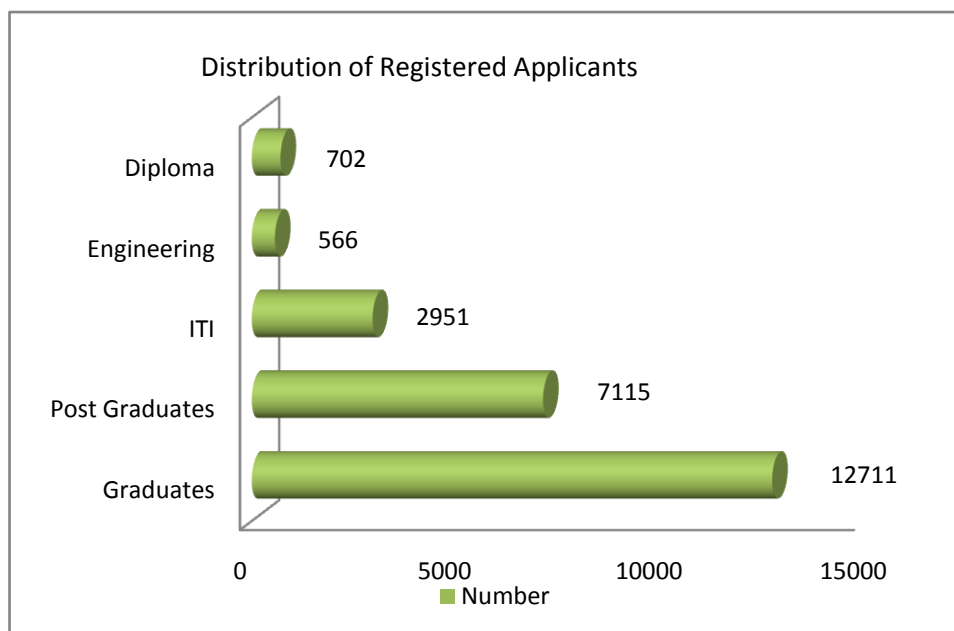
**Figure 26 Distribution of Workforce in Mandi**



The district has a high concentration of the workforce in agriculture which is explained by low industrial activity.

Mandi has a large number of people registered at the employment exchange. The distribution of registered applicants is as indicated below:

**Figure 27 Distribution of people registered in employment exchange in Mandi**



The above figures indicate availability of skilled and unskilled manpower in significant numbers.

### 2.7.12.5. Opportunities

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

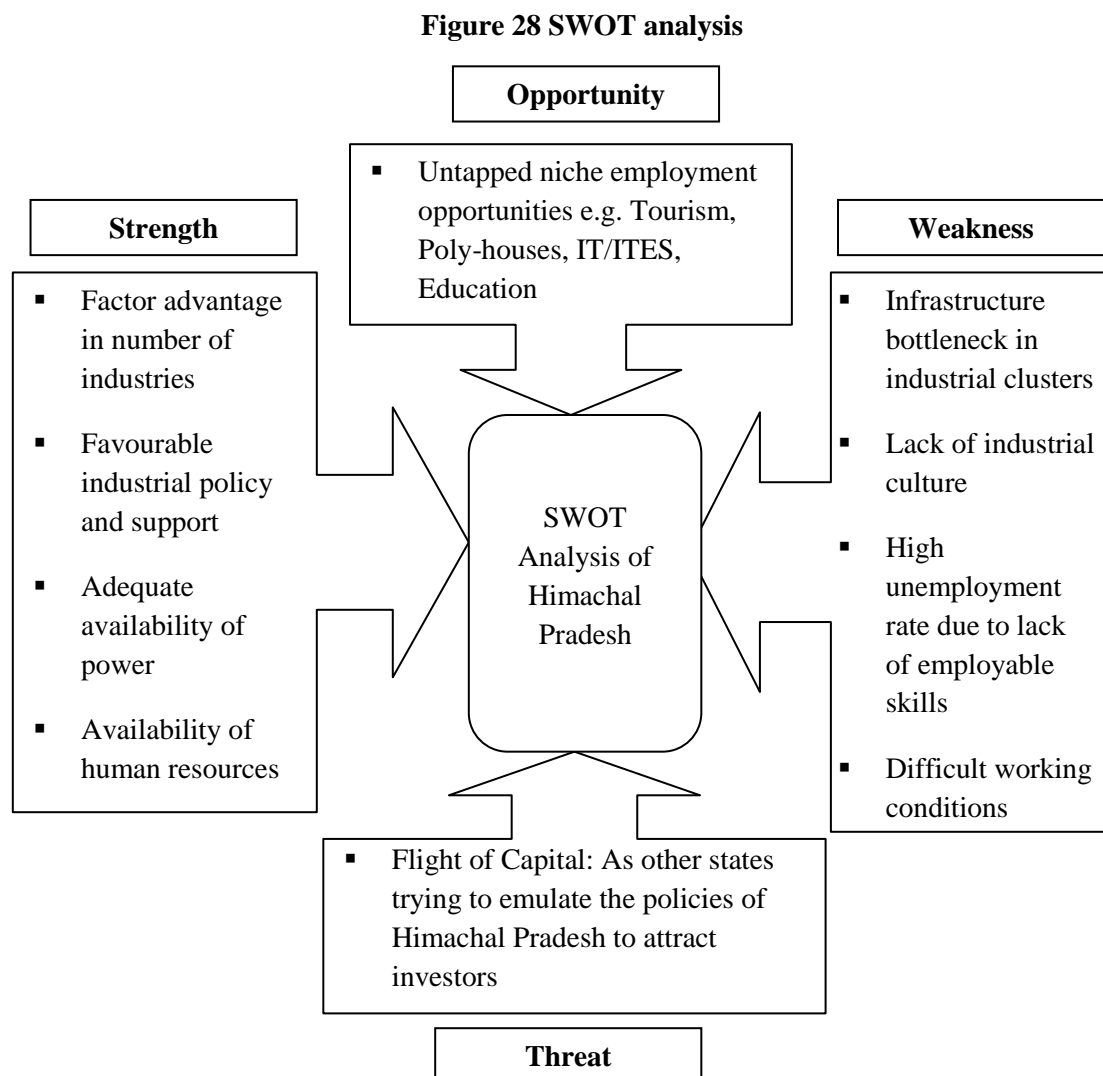
- 1. Agro Processing:** The district has substantial agro production but very few companies are presently functioning in agro processing. Opportunities are present in tea processing and packing, spices production and packaging, pickles and starch production. Manufacturing of Apple Cider can be promoted.
- 2. Tourism:** Mandi district has a few scenic places such as Nerchowk and other places in Beas valley which can be promoted for Health tourism by setting of Spas, Aromatherapy and Naturotherapy units.

Further, the cultivation of herbs and Ayurvedic plants should be encouraged in the district to build up the brand image for Health Tourism.

**3. Financial services:** The sizeable population of the district presents opportunities in the field of financial services such as banking, insurance, asset management, retail which shall increase in demand with economic growth. The large number of unemployed graduates can be absorbed in this industry with domain specific training courses as well as course curriculum interventions.

## 2.8. SWOT Analysis

Based on the state and district level analysis, we have outlined Strength, Weakness, Opportunity and Threat (SWOT) analysis of Himachal Pradesh as follows:-

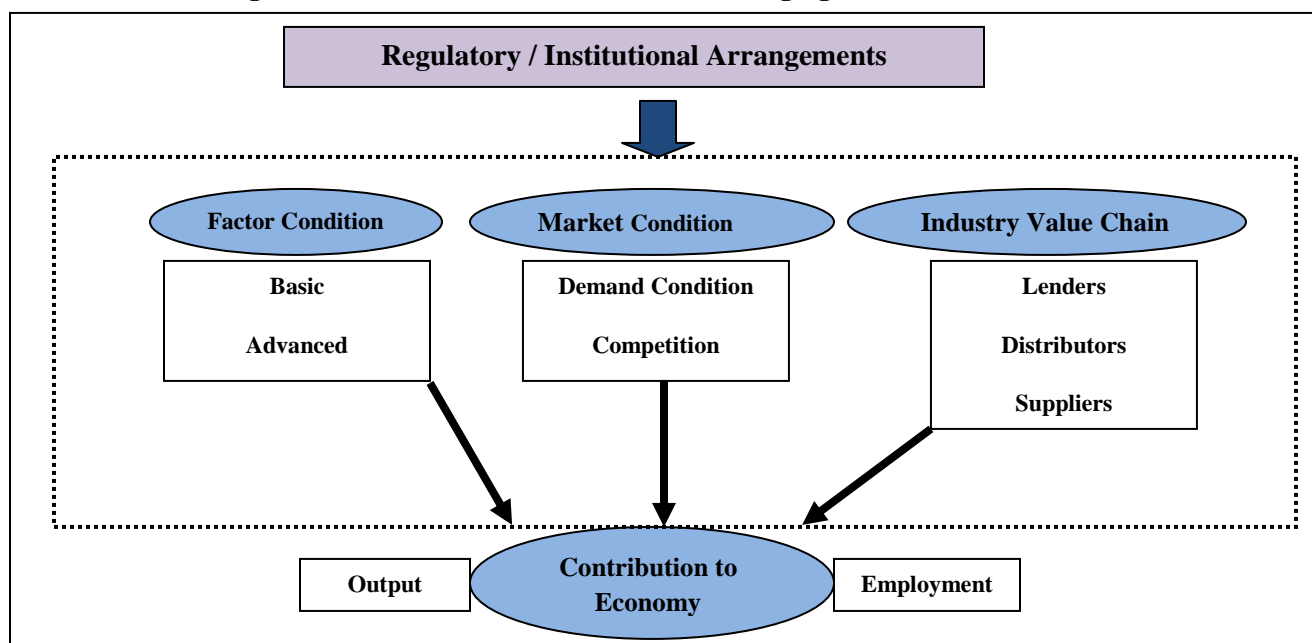


### 3. Identification of High Growth and Emerging Industries

#### 3.1. Framework for identification of high growth and emerging industries

IMaCS has developed a framework for identification of growth engines for the state. The framework is depicted diagrammatically as below:

**Figure 29 Framework for identification of high growth industries**



The framework consists of three underlying growth drivers for the state economy which are explained below:

- i. Factor condition – Factor condition consists of the inherent strengths of a state and district to provide competitive advantage over other locations. These factor conditions make the state a natural attraction for certain industries to be setup e.g. raw material availability, quality of human resources, availability of education infrastructure, weather conditions etc.,
- ii. Market condition – Market condition signifies the extent of development of market for a particular product or service in the region. A significant market potential is essential for development and long term sustenance of an industry. Further, a fledgling market also provides opportunities for backward and forward linkages leading to substantial value addition and employment creation.



Market condition is primarily determined by two factors – Demand and Competition. A low demand scenario needs to be evaluated to determine whether a latent demand exists, else the product would simply be entering a market with no incremental demand. Competition on the other hand should be evaluated based upon the existing and potential demand to determine whether the industry can support a new player without undermining the economics of the business.

- iii. Industry value chain – The third important factor in determining growth drivers is the presence and maturity level of the industry value chain. A typical industry is built upon by several suppliers and distributors with the manufacturing outfit responsible for production. However, in the absence of a well-structured value chain, the industry would be forced to source supplies from costlier sources thereby increasing the overall cost of production. Hence, existence of complete industry value chain is a great incentive for setting up of large scale industries. Further, development of a value chain ensures long term functioning of the industry with creation of additional employment opportunities as well as revenue sources for the state.

Banks and other financial institutions are also an important constituent of the industry value chain to provide credit for establishment of new and expansion of existing industries. These underlying growth drivers are directly / indirectly influenced by regulatory and institutional arrangements initiated by the state authorities. A prime example of this influence is the emergence of pharmaceutical units in the state of Himachal Pradesh. For quite sometime, the main industrial activity in the state was confined to light engineering and textiles. However, with the announcement of the New Industrial Policy, numerous pharmaceutical firms have setup large and medium scale manufacturing facilities in the state eventually emerging as the top contributor to the Net State Domestic Output. The complete absence of any factor advantage of the state for the pharmaceutical industry has been overcome with regulatory provisions boosting the local economy. The growth of the industry however has not led to maturing of the industry value chain and the state needs to provide more institutional arrangements in the form of bio-technology parks and availability of highly skilled manpower to undertake research and development to encourage the industry to function beyond the incentive period.

These underlying growth drivers contribute to the overall economic growth in a region. The relative importance of these drivers is ascertained by calculating the contribution to the economy by a particular industry by way of following parameters:

- A. Employment – The employment potential offered by a particular industry as a result of manufacturing operations as well as by attracting ancillary industries is taken as an impact parameter as it bolsters household income by reducing the unemployment
- B. Output – The contribution to the total state domestic product is taken as the second parameter to determine the economic significance of a particular industry in the region. Manufacturing output is a reflection of factor conditions as well as industry value chain and hence helps in differentiating industries with potential in a particular region.

### 3.2. Key Growth Industries at State and District Level

A snapshot of various opportunities available in the state are discussed below:

1. **Agro-based:** Agro-based industries had approximately 7% share in the state's manufacturing output over the last few years. However, the share of employment is a little higher at 10%. In value terms, the output has registered a CAGR of 5% for the period 2000-2004.

Himachal Pradesh has certain inherent advantages to offer to agro-based industries. The state is witnessing a renewed focus on horticulture produce such as apples, mangoes, peaches, plums, apricot and citrus fruits enabling it to emerge as the largest producer of apples in the country. Fresh investments have also been made in improving supply-chain infrastructure. The Adani group has already commenced operations in agri-procurement and has setup 3 cold chains for the same.

2. **Textiles:** Textile industry has significant presence in the industrial landscape of Himachal Pradesh and registered 18.4% share in the manufacturing output in 2004. Further, the aggregate output of the industry has grown at a CAGR of 8.5% between 2000 and 2004.

The major factors encouraging development of textile industry in the state are proximity to abundant raw material supplies from Punjab, low set-up costs and availability of abundant power. About 77 large and 383 small scale units have further obtained approval since the announcement of the New Industrial Policy. However, most of the mills setup in the state has spinning operations. Hence, potential for further investment exists in the form of moving up the value chain into weaving and dyeing operations.

3. **Light Engineering:** The industry is one of the early components in the industrial landscape and accounted for 16% share in the manufacturing output in 2004. It is also a major source of

employment having 15.8% share in the total industrial employment. The New Industrial Policy has encouraged further growth and the value of the output has grown at a CAGR of 10% between 2000 and 2004.

The major constituents of Light Engineering industry in Himachal Pradesh are hand tools, machine tools, home appliances and medical equipments. The advantages offered by the state for these industries are in the form of abundant power supply and presence of associated support industries. Since, the announcement of the incentives package, 182 large and 2093 small industries have obtained approval.

4. **Pharmaceuticals:** This is relatively newer entrant in the manufacturing sector in the state apart from Ranbaxy Pharmaceuticals which commenced operations long before the New Industrial Policy was announced. However, the sector has grown rapidly and accounted for 26.86% of the total manufacturing output in the year 2004. The potential for the sector is highlighted by the fact that the output in 2004 was approximately double the output recorded in 2003. The sector also accounts for 10% employment out of the total industrial employment.

Baddi Industrial area has emerged as a pharmaceutical hub in the state which has resulted in significant presence of input suppliers. Around 147 large and 734 small pharmaceutical units have been given approval since the announcement of the incentive package.

5. **Tourism and Hospitality:** Himachal Pradesh is an important tourist destination for both the Indian and the foreign traveller. The state has an inherent advantage as it can be easily promoted as an all-weather tourist destination. The sector accounts for 8.71% share in the state NSDP for the year 2006 and its contribution grew at a CAGR of 6.4% for the period 1995-2006. However the potential exists for the sector to grow much more in the coming years.

Tourist arrivals have been growing at approximately 7.8% since 2001 to reach about 7 million domestic tourists and 0.2 million foreign tourists in 2006. The rising numbers have put pressure on existing tourist infrastructure in the state and further investments are being envisaged in this sector.

6. **Power:** Himachal Pradesh has 5 perennial rivers flowing through the state which can be harnessed for production of hydel power. Electricity, gas and water sector recorded a CAGR of 4% between 1995 and 2006 and its contribution has remained constant at about 4.5% to the state

NSDP for the past few years. However, the current influx of investments in hydro power projects is expected to have a positive impact on the contribution of this sector on state economy.

The state has realised the vast hydroelectric potential in the perennial rivers viz Yamuna, Satluj, Beas, Ravi and Chenab and started the process of awarding the development contract to various private parties. The total hydel power potential has been estimated at 20,815 MW (approximately 24% of total potential in the country) out of which 6353 MW has been harnessed to date. Already, power projects of a total of 4212 MW have been allotted till August 2007.

7. **Mineral-based:** The sector contributed 10.88% to the total manufacturing output in the year 2004. The sector recorded a CAGR of 5.9% between 2000-2004 and its share of employment in the year 2004 stood at 9% in the manufacturing activities.

Himachal Pradesh has good reserves of rock salt, gypsum, limestone, silica-sand and barite. Recently, announcements have been made to setup/expand cement production in the state and Chamba and Alsinthi limestone deposits have been allotted for setting up of cement plants of 2 million tonnes capacity each. Further, geo-technical investigations are also underway at 67 sites to establish mineral reserves in the state.

8. **Construction:** The output of construction sector grew at a CAGR of 6.7% during the period 1995-2006 and has contributed around 15.4% to the state NSDP over the last few years.

The sector is expected to record increasing growth rates due to upcoming Ultra-mega Power projects, IT parks and expected growth in industrial activity. Further, investments to the tune of Rs 4000 crore have also been proposed in developing the urban infrastructure over the next few years which is expected to drive further growth.

9. **IT & ITES:** Presently, Himachal Pradesh does not have any significant investments in the IT & ITES sector. However, the industry is expected to grow due to persistent efforts by the government to implement IT all levels. Recent initiatives include setting up of BPO/ITES training labs in 26 colleges and shall soon be expanded to others. The sub-sectors in ITES such as e-businesses, HR services, remote customer interaction, data search, integration and analysis are expected to be the main drivers of growth.

The future growth in the IT industry is expected to be driven by increased outsourcing and movement of the industry to Tier 2 cities to cut down costs. The state has realized the opportunity

and announced setting up of 5 IT parks at Wahnaghat and Nalagarh in Solan district, Palampur and Nurpur in Kangra district and Dalhousie in Chamba district. The work has already been started at Wahnaghat and Phase – I of the project is expected to be commissioned by 2010.

10. **Banking and Finance:** Banking and finance falls in the tertiary sector and its growth is directly correlated with economic growth. With industrialisation increasing in the state, the Banking and Finance sector has also recorded a CAGR of 12.5% during the period 1995-2006. The sector now contributes approximately over 6% to the state NSDP annually.

Himachal Pradesh currently has a network of 1216 branches and penetration of banking services stands at 13 branches per lakh of population, the scope for distribution of other financial products is immense. The credit-deposit ratio at 52.9% also compares poorly with the all-India average of 74.13% and is expected to rise significantly with increasing industrialisation.

Given this back-drop of State level opportunities, it is imperative to segment the districts in order to optimise the usage of available resources and adopt a focused approach towards development. IMaCS has identified the district-wise growth engines based on the following set of criteria:

1. Historical presence of industry in the geography
2. Physical and Social Infrastructure
3. Availability of trained manpower
4. Factor advantages that can be utilised
5. Presence of backward and forward linkages in close proximity

On the basis of the above factors, distribution of district-wise key industries are as follows:

1. **Bilaspur:** This district does not offer much potential for large-scale industrialisation on account of limited resources and locational features. However, few industries can be promoted with the aid of focused efforts by State Government:
  - Agro-based – Floriculture and horticulture can be encouraged in the district as limited scope for large farming owing to small land holdings.

- Hydro Power – Sutlej river flowing through the district is a potential source of hydel power generation. NTPC is constructing a power plant at KolDam which is also providing opportunities for employment in construction sector. Further, the man made reservoirs resulting out of dam construction can be utilised to promote Bilaspur as a stop-over tourist destination amongst Kangra- Kullu bound travellers for adventure sports.
  - Transportation – The district acts as a gateway connecting other interior districts of the state with the neighbouring state. In the absence of rail-head, man and material movement happens through road transport offering enough opportunity for the district to be developed as a transport hub.
  - Small Scale Units - Infrastructure at industrial area needs to be developed to attract small scale industries as they do not require large tracts of flat land. The check post at Punjab border is a deterrent to rapid development of the industrial area as vehicular traffic is restricted to certain times of the day. Hence, raw material and finished good movement is hampered. The administration should look into the possibility of repositioning the check post after the commercialisation of the industrial area.
  - Tourism - Govind Sagar Lake provides opportunities for water-sports such as, canoeing, water skiing, surfing etc. It also offers huge opportunities for development of adventure sports such as para gliding and hang gliding as well. The other lesser known and almost in ruins tourist attractions of Bahadurpur Fort and Naina Devi can be developed to attract tourists to Bilaspur.
  - Dairy Farming: Most of the demand for milk is met by supplies from Punjab. Hence, animal husbandry needs to be promoted at the district level as a source of additional income as well as self employment in addition to meeting the nutritional requirement of the district.
2. **Chamba:** The natural water resources can be leveraged to improve the economic condition of the district. Further the forward and backward linkages created in the process of harnessing hydro energy shall help create further employment opportunity in the district. The following opportunities can be exploited:

- Hydro Power – Hydel power generation has immense potential on the river Ravi. Currently NHPC is operating two power plants Chamera I and Chamera II. More plants such as Chamera III and Lanco Green power at Bharmour are in various stages of construction
  - IT/ITES – Proposed IT park at Dalhousie should be utilised to attract ITES firms
  - Construction – Large scale construction activities such as Hydro Power plants, IT park will place a severe demand for manpower on the construction sector
  - Tourism - The tourism potential of Chamba has not been fully exploited and the district still receives a lesser share of total tourist arrivals in Himachal Pradesh. Hence, sustained promotion of the various tourism destinations is required. Further, increased tourism will also provide a market for the local handicraft and handloom industry.
  - Dairy Farming - Animal husbandry has traditionally been practiced for a long time and natural environment is quite favourable for milk production. Dairy farming can be provided renewed thrust in the district so that the excess production can be used to meet demands of neighbouring districts in the state.
  - Agro-based - Horticulture has substantial potential in the district as the climate conditions are suitable for fruit production. Teesa valley and Churah valley are the main centres of floriculture. Small scale industrial unit can be setup for extraction of oil from flowers since presently; farmers are only involved in production. Oil extraction and marketing would lead to value addition and more revenues, thereby attracting more people in the occupation.
3. **Hamirpur:** Owing to limited industrial activity within the district, it is the largest contributor of labour force working in the industrialised areas of Himachal Pradesh. The location of the district would prohibit attracting large scale companies to the district, but adequate opportunities exist for small scale industries and self-employment activities.
- Agro-based – Due to lack of availability of land at industrial areas, agro based industries such as starch, milk products, floriculture are avenues of future potential

- IT / ITES – ITES and IT companies can be attracted to take advantage of highly educated manpower in the district.
  - Light Engineering - Small fabrication units can be set up to meet the material requirement at construction sites of near-by district and for local consumption within the district.
  - Dairy Farming: Though dairy farming can be given only limited thrust in the district since the small geographical area leads to lack of large permanent pastures and grazing land, it should be promoted among local population with small farm holdings which can be developed into feeding grounds for cattle. Apart from this, the government should promote poultry farming in the district which does not suffer from these constraints.
  - Tourism: Though the district offers limited opportunity in tourism sector, the historical fort of Sujampur Tihra can be promoted under event – based marketing around annual festival of Holi.
4. **Kangra:** The district economy is primarily driven by agriculture and tourism. However several new economic activities can be positioned to take advantage of socio-economic infrastructure of the district:
- IT/ITES – Proximity to Punjab and proposal to setup two IT parks in the district should be leveraged to attract small and medium scale IT companies
  - Agro-based – Kangra has the highest agricultural production in the state and hence should be positioned as a preferred destination for agro-based industries such as juices, processed food, starch etc
  - Mineral based – Presence of limestone deposits should be exploited to attract mineral based industries
  - Tourism: Kangra attracts a large number of tourists. A good hospitality infrastructure would help position the district as an important destination amongst tourists and help generate employment opportunity for local population.
  - Financial Services: Services based organisations have huge potential for employment



- Dairy farming – Dairy farming can be undertaken in the district to bridge the gap in supply and demand.
5. **Shimla:** The district economy rests on tourist inflows and horticulture produce. However, a good social and physical infrastructure can be used towards industrial development of the district. IMaCS expect the following industries can be promoted in Shimla in light of the inherent strengths of the district:
- Tourism – Being the most frequent tourist destination in Himachal, there is immense potential for developing the hospitality infrastructure in the district which shall generate large scale direct and indirect employment opportunities
  - Agro-based – High apple cultivation provides opportunities in agri-procurement and agri-processing. Adani Agrifresh and Reliance have already made investments in supply chain infrastructure in the district.
  - IT/ITES – It offers the advantage of large pool of educated manpower which along with State IT Policy shall attract small and medium ITES firms to the district.
  - Light Engineering – Few small scale industries are operating at Shoghi Industrial Area but the operations are centred around low-value add products. Improvement in the urban and social infrastructure in surrounding industrial areas can help in attracting large number of small and medium scale companies.
6. **Sirmaur:** The district has attracted good investments in last few years. However latest announcement of tax free zones in neighbouring state of Uttranchal has impacted the flow of investments to the district. The infrastructural facilities need to be improved in the district to attract investments and compete with neighbouring states. The focus should be on following key industries:
- Textiles – Presence of textile mills such as Malwa Cotton Spinning mills and Pasupathi Textile mills. Potential exists in the form of upgradation of value chain to integrated textile mills.

- Pharmaceutical – Presence of few large pharmaceutical companies combined with good network of technical training institutes and social infrastructure can attract pharma companies.
  - Light Engineering – Numerous firms are presently functioning in varied sectors such as steel fabrication, rolling mills, air conditioner manufacturing, LPG cylinder manufacturing. The economic growth and large scale construction activity can act as drivers for capacity expansion in this sector for small and medium fabrication and tool units. The focus should be on attracting higher value add companies such as IT hardware and electronics manufacturing which lead to development of small scale ancillary units.
  - Mineral-based – Presence of large scale companies in cement and chemicals industry. Abundant availability of limestone reserves can be utilised to attract large scale units dealing in construction material and other chemical products.
  - Agro-based Industries: Thrust should be on setting up of more agro-based industries for packaging as well as processing of agri-produce for meeting the domestic requirements or for overseas supplies.
  - Tourism: The tourism in Sirmaur can be developed around the religious theme and its close proximity to Haryana and Dehradun (Uttaranchal) offers the opportunity to attract tourists from these places for a short visit.
7. **Solan:** This district of the state has witnessed the highest growth of industrial activity owing to its locational advantage and historic presence of large industrial units. Though the district offers good opportunity for almost all kinds of industries, the efforts should be concentrated towards following sectors:
- Textiles –Textile mills such as Birla, Vardhman and Auro are presently functioning. Potential exists in moving up the value chain to weaving and dyeing. Close proximity to raw material supplies from Punjab can help attract large-scale manufacturing units
  - Pharmaceutical – Large number of pharma units are present including few large players such as Cipla, Torrent Pharma etc. Future potential exists for attracting new investments and in moving up the value chain to research and development of new drugs

- IT / ITES – No company presently in operation. However setting up of IT park at Wagnaghat should provide a boost to IT industry and help attract leading IT firms to the state.
  - Light engineering – Presence of wide mix of companies involved in different set of operations such as Purolator, Gabriel, Havells and Samtel. Future potential exists in attracting more companies at higher levels of engineering value chain.
  - Tourism: Solan can be developed as entertainment hub aimed at transit tourist travelling by road from Delhi and Chandigarh to Shimla.
8. **Una:** The district is considered to be one of the industrialised districts of the state with a good number of large and medium scale enterprises in operation apart from small scale companies. Owing to its close proximity with neighbouring states and existing industrial presence, following opportunities can be explored to improve the district economy:
- Textiles – Though not many textile mills are currently in operation, the large industrial areas and proximity to Punjab can be utilised to attract investments in this industry. Availability of large tracts of flat land can be used to set up large scale integrated textile units in the district.
  - Light Engineering – Historical presence of engineering companies such as International Cars and Motors Limited, Luminous Batteries, Deepak Fasteners, Possible Automobiles reinforces the availability of skilled manpower. Abundant land availability can be used to attract medium and large scale industries at higher level of value chain.
  - Financial Services: Service industry such as banks, insurance companies are coming up in the town of Una and increased industrialisation would serve as driver for these industries in two ways: growth of banks for industrial credit and increase in demand for financial products by the local population.
  - Dairy farming - Promotion of dairy farming to bridge the gap in supply and demand.
  - Tourism: The district has few attractions for religious travellers such as Dera Baba Bharbhag Singh and Chintpurni Temple which can be promoted using event based marketing during festivals.



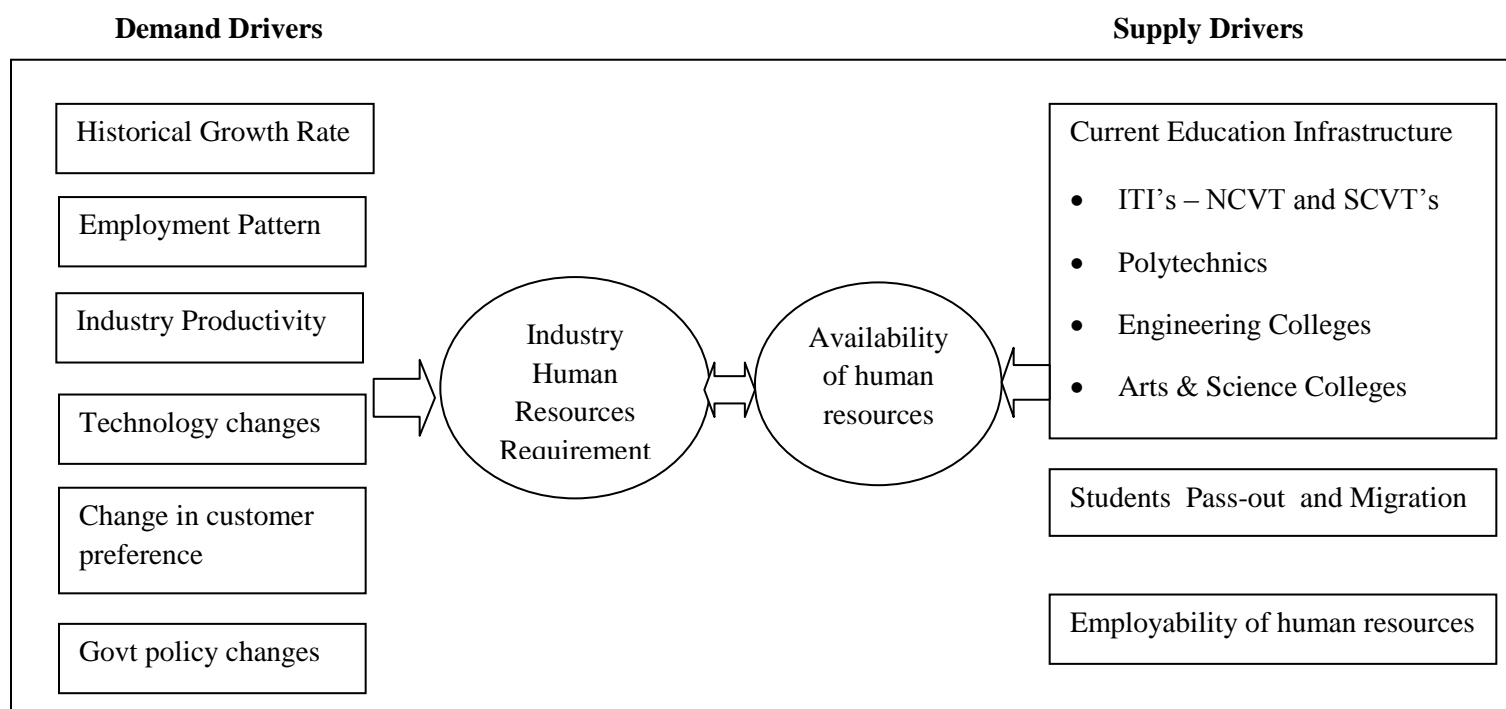
## 4. Human Resources Requirement and Education Infrastructure

Based on the growth potential of the district, IMaCS has estimated incremental human resources requirement of the state by forecasting human requirement of high growth and emerging sectors, looking at current supply pipeline of human resources and current level of employability of human resources of the state.

### 4.1. Human Resources Forecasting Model

IMaCS has developed a model for estimating human resources requirement for the state based growth potential of industries at the district level. The model is depicted diagrammatically as below:

**Figure 30 Human Resources Forecasting Model**



The following approach is adopted for estimating the human resource requirement:

- Industry-wise classification of work-force into 3-4 levels
- Classification of employment opportunities into direct and indirect
- Estimate the supply of workforce based on turnout of various technical and non-technical education institutes

- Forecast direct employment requirement based on revenue per person, potential increase in value addition, productivity improvement
- Forecast indirect employment opportunities taking into account industry structure, value chain, down stream industries, level of outsourcing opportunities, distribution channels, after sales support
- Based on the above analysis, we will identify industry wise potential gap between demand and supply

## 4.2. Demand analysis – Incremental human resources requirement till 2015

Based on the above inputs, we have forecasted the human resource requirement of different industries in Himachal Pradesh till 2015. The requirement shall be compared against the supply of technical and non-technical workforce which shall help us identify the deficit of human resources.

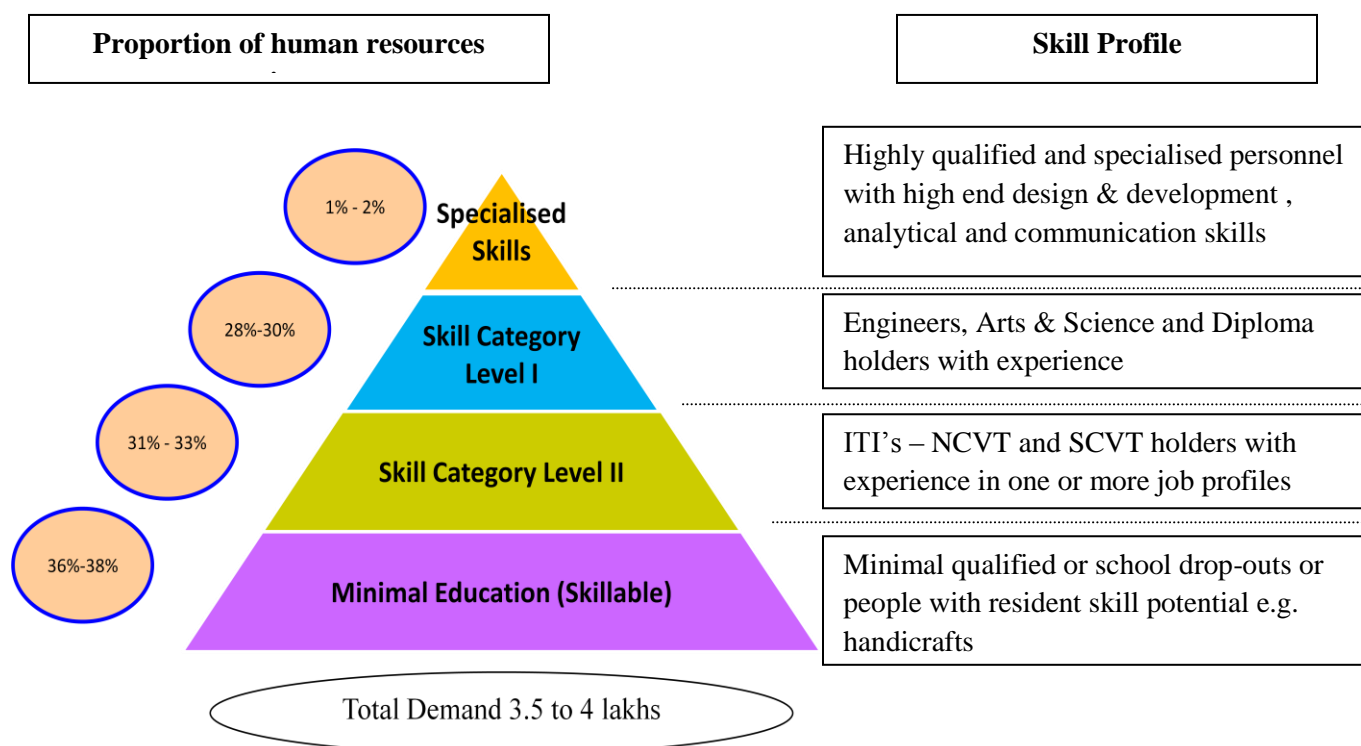
**Table 30 Incremental human resources requirement till 2015**

Sectors	Employment in '00			Incremental (2015- current)
	2006	2010	2015	
Pharma	166	331	398	232
Light Engineering	286	546	610	324
ITeS/BPO	15	88	244	229
Repair Mechanics	278	366	505	228
Construction	206	340	601	395
Cement	58	113	173	115
Hospitality	1713	2047	2469	757
Hydro	344	358	436	92
Textiles	195	309	348	153
Agro Processing	250	350	550	300
Retailing	125	250	600	475
<b>Total</b>	<b>3260</b>	<b>4497</b>	<b>5786</b>	<b>3300</b>

*Source: IMaCS Analysis*

IMaCS envisage that by 2015, the opportunity landscape in Himachal Pradesh will have 3.5 to 4 lakh new (incremental) jobs to offer, considering the likely improvements in economic output and labour productivity. The employment opportunities envisaged are likely to emanate mainly from the construction, pharma, hospitality, IT & ITES, light engineering, mineral based industries, textiles, hydro-power and other resident industries. The break-up for such job opportunities in terms of skill level and job class are illustrated below:

**Figure 31 Demand for incremental human resources requirement – Skill Category wise**



Source: IMaCS Analysis

**Table 31 Demand for incremental human resources requirement – Job Class wise (Illustrative)**

#	Industry	Job Class
1.	Construction	Mason, Carpenter, Plumber, Plasterer, Welder, Construction equipment operators, Centering and Glazing, Electricians, Store Keepers, Site Supervisors, Estimators, Piping engineers etc., Tunnelling experts,
2.	Hydro power	Supervisors and Operators (Hydro) and Supervisor and Operators (Power System), Batching and Chilling Plant Operators, Turbine Maintenance

#	Industry	Job Class
3.	Textiles	<p><b>Garmenting:</b> Cutting, Sewing, Finishing, Pattern Making, Packaging, Quality Inspection (Demand emanate from Punjab), Fashion Technologist</p> <p><b>Dyeing:</b> Textile chemistry, Colour Matching (Demand from other states)</p> <p><b>Spinning:</b> Quality Inspection, House Keeping Support, Machine Maintenance, Electricians (Local demand)</p>
4.	Engineering	Mechanics, CNC machine operators, Material Handling, Mechatronics, Die Making and Tool Design, Store Assistants, Design Professionals, Maintenance - Machine and Electrical (Multi-skilled professionals), Refrigeration specialists – HVAC systems
5.	IT & ITES	Medical and Legal specialists for transcription jobs, Revenue accounting and other ancillary operations, Insurance claims processing, customer support services (in-bound and out-bound), High end programmers functions etc., Hardware Maintenance, Network Maintenance, Technical Helpers (Software and Hardware Trouble shooting)
6.	Agro Processing	Fruit Juice retailing (outside districts), cold storage operators, quality inspectors, Maintenance Engineers specialised in process equipments, sales and marketing executives, purchase assistants (during seasons), food technologists, Lab assistants
7.	Retailing	Stores management, purchase and merchandising, POS assistants, billing assistants, customer service representatives, market researchers, branding specialists, mystery shoppers (freelance), Account and Finance specialists etc.,
8.	Repair	Auto mechanics, consumer goods mechanics, mobile repair etc.,
9.	Tourism and Hospitality	Guides, Local Tour Operators, Travel agents – Ticketing, logistics provider and foreign language experts, Catering, Lobby Managers, Billing and Collections, Front desk attendant, Event Managers, Camp and Trekking specialists, Air traffic controllers, Ground Handling specialists
10.	Pharmaceutical	<ul style="list-style-type: none"> <li>• Mixing and blending machine setters, operators, and tenders for milling and grinding machines that reduce mixtures to particles of designated sizes.</li> <li>• Extruding, forming, pressing, and compacting machine setters / operators / tenders who tend tanks and kettles for mixing solutions and compounds to make up creams, ointments, liquid medications, and powders.</li> <li>• Crushing, grinding, polishing, mixing, and blending workers operating</li> </ul>



#	Industry	Job Class
		<p>machines that compress ingredients into tablets.</p> <ul style="list-style-type: none"> <li>• Coating, painting, and spraying machine setters / operators / tenders control a battery of machines applying coatings that flavour, colour, preserve, or add medication to tablets, or control disintegration time.</li> <li>• R&amp;D specialists (Outside HP)</li> <li>• Machine maintenance supervisors</li> <li>• Bioinformatics (for IT jobs)</li> <li>• Biotechnologists (high demand from overseas)</li> <li>• Tissue culture specialists (high demand from overseas)</li> </ul>
11.	Logistics	Drivers and mechanics

### 4.3. Supply analysis

Based on the demand analysis, IMaCS looked at the supply pipe-line of human resources from different sources namely ITI's, Polytechnics, Engineering Colleges, Arts and Science Graduates to ascertain any supply side constraints. Currently, the HP has 3 Universities, 7 Engineering colleges, 10 Polytechnics, 97 ITI's, 249 SCVT, 72 undergraduate colleges, 5 MBA colleges, 4 MCA colleges and 9 Pharmacy Degree / Diploma colleges. Together, these institutes have the enrolment capacity of over lakh students every year encompassing the following education streams:

**Table 32 Capacity of education stream in Himachal Pradesh**

#	Stream	Capacity
1	Engineering	2235
2	Diploma	1600
3	Undergraduate / PG courses	65000
4	ITI	7986
5	SCVT	21864@
6	MBBS	115
7	BDS	340
8	B.Ed	8220
9	LLB	850

@ PTI, A&C and Ayurvedic courses contributes to over 50% of seat capacity

However, discussions with key stakeholders revealed that the turnout of engineering / diploma students remain low at 65%, vocational training at 60% and Arts and Science at 40%. Also, over 40% of students who are passing out remain unemployable to systemic issues as highlighted in our diagnostic sector. Considering the enrolment, turnout and employability, IMaCS worked out demand – supply gap in the next section.

#### 4.4. Survey of employable youths in Himachal Pradesh

IMaCS has carried out a survey of 6000 youth as part of Skill gap analysis in the youth of Himachal Pradesh. The survey sample was selected in proportion with the demographics of all the districts to resemble a more cohesive picture of the state's youth population. The sample plan is shown as below:

S.No.	District	Report
1	Bilaspur	358
2	Chamba	268
3	Hamirpur	508
4	Kangra	1506
5	Kinnaur	61
6	Kullu	282
7	Lahaul & Spiti	27
8	Mandi	909
9	Shimla	805
10	Sirmaur	286
11	Solan	498
12	Una	492
<b>Total</b>		<b>6000</b>

The following are the salient points of the feedback received:

##### Survey of Unemployed Youth:

- Very few unemployed youth have undergone any vocational training programs
- Majority of the respondents think the quality of teaching staff across all educational institutes is good or average.
- Majority of the respondents consider the training quality in educational institutions to be of good or average quality.
- Almost all the respondents covered are of the opinion that subject coverage is good or average.

- Infrastructure availability is rated average by more than half of the respondents.
- Availability of support infrastructure in institutes for practical experience has emerged as the biggest concern of all the respondents polled.
- Most of the respondents are confident about their skills to execute jobs in which they have been trained
- Most of the respondents have indicated a preference for getting recruited in a government job
- Respondents have indicated lack of job opportunities in HP as the primary reason for unemployment followed by lack of knowledge/skills/training
- More respondents have indicated willingness to work outside Himachal Pradesh compared to working within the state. This is especially pronounced in case of respondents having specialized educational qualifications.
- Some of the areas indicated by respondents which require training programmes are:
  - Vocational courses such as textile designing, basic computer skills
  - Soft skills such as communication, leadership
  - English speaking skills

#### Survey of Students:

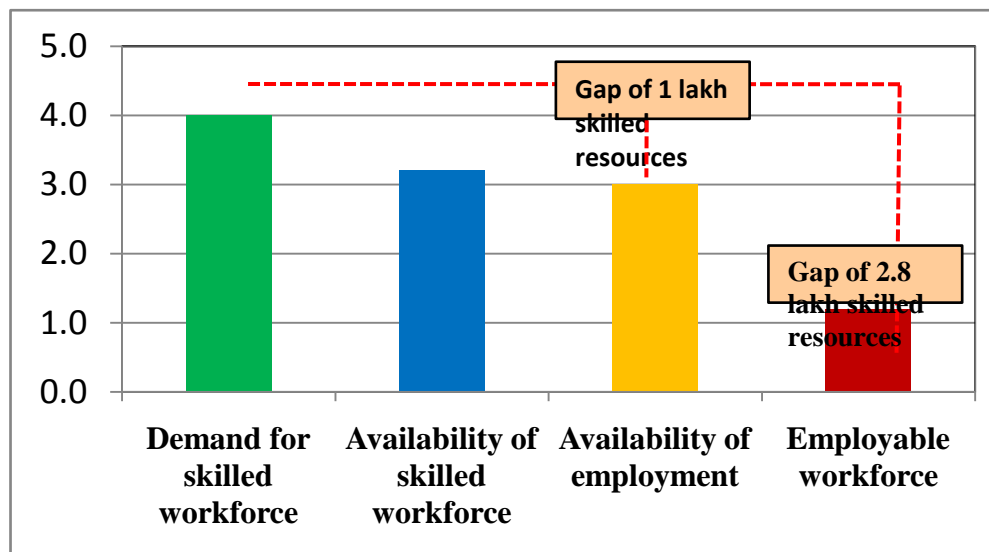
- Training quality is a subject of concern in educational institutes with students divided on the quality as being good or average.
- Subject quality is considered to be average and not in tune with market.
- Availability of facilities such as computer labs, infrastructure etc has been rated as poor by almost 1/3rd of the respondents and is an area of major concern.
- Availability of support infrastructure in educational institutes for practical experience is considered average by most of the respondents.
- Most of the students feel quite confident of their skills to execute the jobs for which they are being trained. However, the students feel that lack of job opportunities as well as lack of knowledge/skills training contributes equally towards unemployment in the state.

## **4.5. Demand – Supply Gap analysis**

The demand for skilled workforce as part of the overall workforce requirements is estimated to be around 3.5 lakhs till 2015. Supply of skilled workforce available for employment is estimated to be around 3.0

lakhs till 2015. Based on employability, the available skilled workforce is estimated to be 1.2 lakhs till 2015.

**Figure 32 Demand – Supply Gap**



Some of the key issues impacting the demand – gap analysis are:

- Shortfall in availability of skilled workforce by 20%
- Shortfall in availability of employable workforce by 50% to 60%
- Acute shortfall in number of ITI's, Polytechnics and Engineering level
- Excess availability of Arts and Science graduates requires channeling human resources to knowledge based industries
- Excess availability of SCVT w.r.t specific courses like PTI, A&C and Ayurvedic courses contributes to over 50% of seat capacity and certainly requires rationalisation.

## **5. Mapping of Human Resource Skills – Industry wise**

### **5.1. Introduction**

IMaCS has undertaken a detailed skill mapping exercise across the various key industries in Himachal Pradesh. This is done through our interactions with companies in each of the industry sector to understand the value chain and scale of operations in respective industry segment, the staffing policies and procedures in terms of organisational hierarchy, responsibilities of various levels, skills required at different level of the organisation and sources of manpower supply.

This exercise was undertaken with an objective to understand the existing and potential skill requirements, and current skill gaps observed at different levels of organisation in terms of functional and soft skill aspects of the job.

IMaCS has reviewed the various drivers impacting the growth of the industry in the country in general and in Himachal Pradesh in particular. This has helped us understand the implication on the organisation in terms of skills to be acquired / developed in light of the changes brought about by the business environment.

### **5.2. Industry-wise Skill Analysis**

This section provides a detailed level-wise analysis of following key industries: pharmaceutical, light-engineering, textiles, hospitality and tourism, agro-procurement, IT / ITeS, hydropower and cement. IMaCS has undertaken skill analysis up to four levels in each of the industry as these levels form about 80-85% of the workforce and are most likely to be recruited from within the state.

#### **5.2.1. Pharmaceutical Industry**

##### ***Introduction***

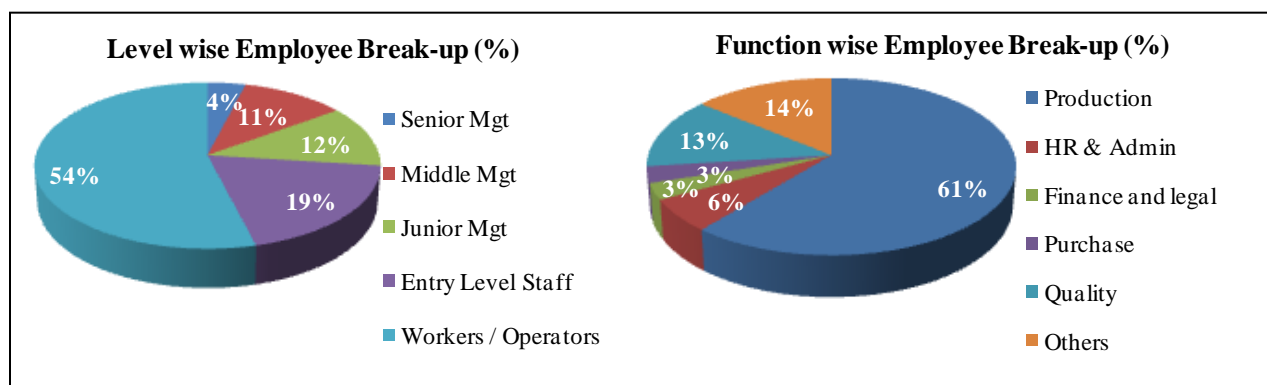
Pharmaceutical industry in India has come a long way from being a producer of generic drugs to an important player in the research and development of new drugs and drug delivery system. However, the pharmaceutical industry in Himachal Pradesh is at the nascent stage of industry value chain with few clusters in the state becoming a production hub for all kind of formulations. The growth in the pharmaceutical industry is expected to be driven by various factors such as:

- Growing trend towards contract manufacturing by leading pharmaceutical companies as they concentrate more on R&D and patent filing
- Increase in per-capita healthcare spend as reflected in increasing allocations for NHRM.
- Increasing presence of Indian companies in the higher end of global value chain.
- Evolution of stringent international quality standards
- Rising competition from low cost countries such as China pushing manufacturers to achieve cost efficiencies
- Product and process innovations and experimentation with New Drug Delivery Mechanism

### **Human Resource**

The pharmaceutical industry in Himachal Pradesh is primarily concentrated in Baddi (Solan) and Paonta Sahib (Sirmour). Una district has also emerged as a potential destination for development of pharma cluster. The graph below provides a break up of human resources according to hierarchy and function in a typical pharmaceutical unit based on our interaction with pharmaceutical companies in the state.

**Figure 33 Human Resource Break-up in Pharmaceutical Industry**



Source: Primary Discussion with Companies

The pharmaceutical industry in Himachal Pradesh is characterised by following features:

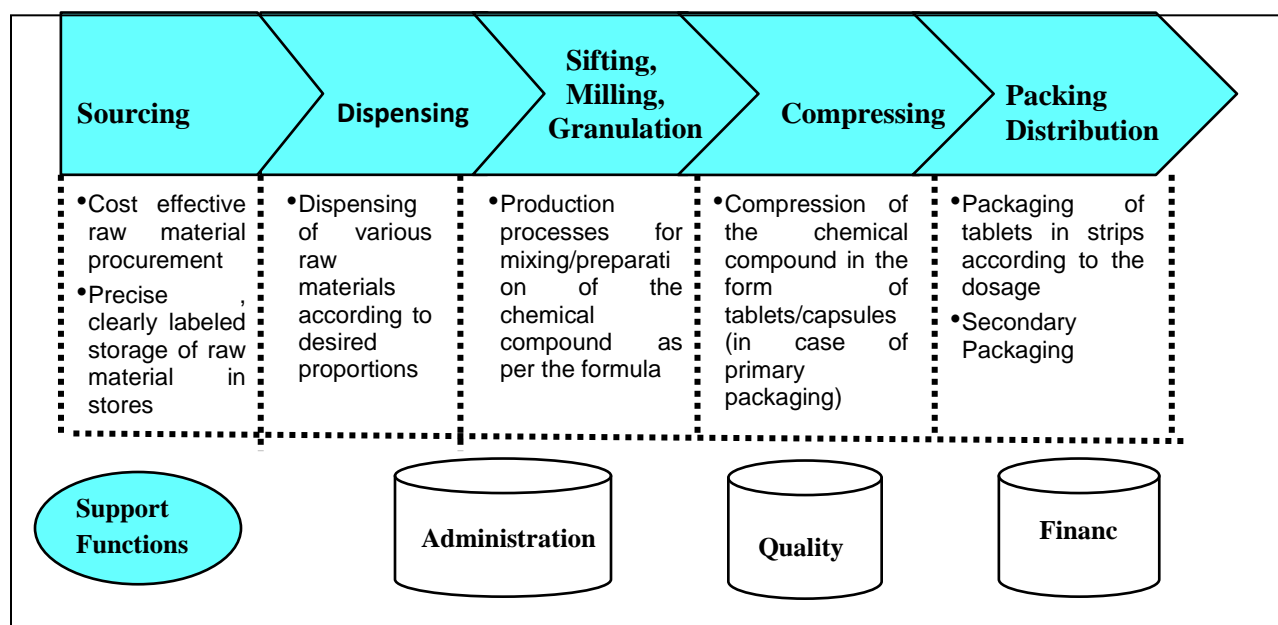
1. Difficulty in recruiting technical and experienced manpower from Himachal Pradesh in order to comply with employment reservation policy. Hence, most of the local population is employed at worker, entry level and junior staff; whereas the middle and senior level management as well as highly skilled manpower is sourced from outside the state.

2. Relatively low worker / operator ratio to the total employed workforce since most of the processes are automated. Further, manpower centric functions such as Sales and R&D are centralised at the Head Office which are usually outside the state.

### Value Chain

The value chain of the pharmaceutical industry in Himachal Pradesh encompasses functions as shown in Figure 28. The support functions comprise of Administration, Quality and Finance. Quality in a pharmaceutical company is of critical importance and requires medium to highly skilled individuals for quality assurance and quality control.

**Figure 34 Value Chain in Pharmaceutical Industry**



### Profile of Workforce

IMaCS has analysed the respective roles and responsibilities of different level of people in the pharmaceutical value chain as shown in table:

**Table 33 Profile of workforce in Pharmaceutical Industry**

Level	Qualification	Key function
Helper	Minimum 8 <sup>th</sup> pass	Handling and moving of raw material and finished product from and to stores

		Packaging and Labelling
Operators	Studied upto Class 12, having few years of experience on shop floor  Fresh ITI students - Machinists, electrical, refrigeration	Filling and formulation machine operators  Maintenance and AHU Operators
Line Supervisor	B.Pharma, D.Pharma with experience  M.Sc, B.Sc in Chemistry for QA & QC  Graduate / Post Graduate	Production In charge  Quality In charge  Purchase and HR
Plant Manager	B.Pharma, M.Pharma with minimum 10 years of work experience in relevant industry	Responsible for all production activities in the plant

### ***Skill Requirements and Skill Gaps Observed***

IMaCS has analysed the skill required at various levels of the organisation to execute the assigned roles and responsibilities.

#### **Level 1 - Helpers**

- ***Functional skills***

- Ability to read and write
- Strict adherence to quality standards such as wearing of masks, gloves
- Observation skill such as identification of pilferage in stores, leakage in capsules, broken tablets
- Ability to follow instruction

- ***Soft skills*** required are ability to work in teams, personal hygiene and punctuality

- ***Skill gaps***

- Absenteeism and High attrition
- Involvement in organization politics and union activities
- Unwillingness to take directions from supervisor
- Inability to observe errors in production



## Level 2 – Operators

### Production

- **Functional skills:**
  - Strong Technical knowledge
  - Observation skills to identify possible malfunctions
  - Flexibility with respect to work timings
  
- **Soft skills** required are willingness to assume ownership, punctuality and ability to co-ordinate with fellow workers

### Maintenance

- **Functional skills:**
  - Technical knowledge and machine configuration
  - Problem identification and solving skills
  - Flexibility with respect to work timings
  
- **Soft skills** required are similar to production function.
  
- **Skill Gaps for Production and Maintenance Personnel**
  - Lack of technical know-how among ITI students as they lack practical orientation and exposure to machines
  - Lack of self motivation to enhance and update skills
  - Inability to deal with situations, high degree of handholding required

## Level 3 - Line Supervisor

### Production

- **Functional skills:**
  - Technical knowledge about products(chemical compounds and their properties) and processes(temperature requirements etc)
  - Attitude towards learning and skill enhancement
  - Mentoring and training of operators
  
- **Soft skills** required are Adequate communication skills, ability to manage a team and motivation and leadership skills

## Store Supervisor

- **Functional skills:**
  - Negotiation and book-keeping
  - Knowledge of IT applications for accounting and record-keeping
- **Soft skills** required are good communication skills and ability to co-ordinate with other departments.
- **Skill gaps**
  - Pharmaceutical graduates lack knowledge about chemical compounds and laboratory testing processes
  - Lack of problem solving aptitude and leadership skills
  - Non-ambitious, lack result orientation
  - Over-confident and unable to maintain conducive work environment
  - Non-availability of experienced professionals from local talent pool

## Level 4 - Plant Engineer

- **Functional skills:**
  - Understanding of products, processes, technological advances in machinery and manufacturing
  - Ability to identify avenues for cost reduction and optimum resource utilization
  - Ability to comply with internal processes such as WHO-GMP, Schedule-M and SOPs across all levels
- **Soft skills** required are networking skills, people management, leadership and communication skills.
- **Skill gaps**
  - Non-availability of highly qualified and experienced professionals from local talent pool

## Quality

- Responsibilities
  - Developing SOPs, work-process flow and supervising adherence
  - Ensuring machines and infrastructural facilities comply with WHO / GMP, Schedule-M norms
  - Regular checking of raw materials and products for correct dosage forms and against spurious materials

- Skills required are technical knowledge about products and laboratory operations to check spurious materials; Enhance the knowledge about best practices and norms followed elsewhere and Ability to communicate importance of quality adherence to the operating staff

### **Finance and Administration**

- Responsibilities
  - Liaison with service providers to ensure smooth operations
  - MIS, Budgeting
- Skills required are co-ordination with other functions, ability to adhere to timelines for MIS reports; process streamlining for cost efficiencies and understanding of IT application and accounting software.

## **5.2.2. Light Engineering**

### ***Introduction***

Light engineering industry in India is characterised by manufacturing of moderately technical products such as hand tools, components, surgical instruments, electricals and electronics, bi-cycles, metal fabrication for varied industrial applications. However, the light engineering industry in Himachal Pradesh is not well developed and fall in the early stage of industry value chain with few clusters housing high value add companies in auto component and consumer electronics. The growth in the light engineering industry is expected to be driven by several factors such as:

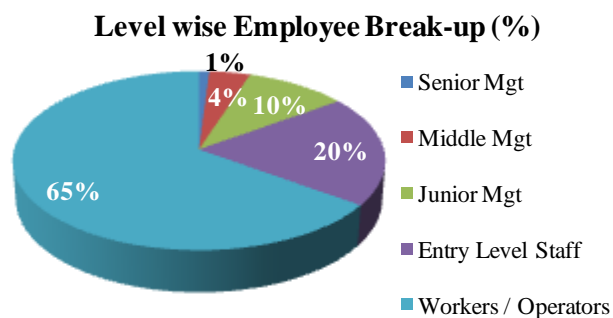
- Availability of low cost engineers and machine operators
- Competitive export markets and strict quality parameters
- Rapid advances in technology and manufacturing processes
- Integration of value chain with design, R&D and manufacturing
- Strong growth of manufacturing sector in India

### ***Human Resource***

Light engineering industry in Himachal Pradesh comprise of rolling mill, precision components, automotive components, inverters and batteries and LPG cylinders. The industry is spread over the entire state with varying value addition and maturity of industry depending upon the district. The more industrialised districts of Solan, Sirmour and Una have medium and high scale industries while other districts mainly have small scale industries catering to the local markets. The graph below provides a

break-up of human resources according to hierarchy and function in a typical light engineering industry based on our interaction with such companies in the state.

**Figure 35 Human Resource Break-up in Light Engineering Industry**



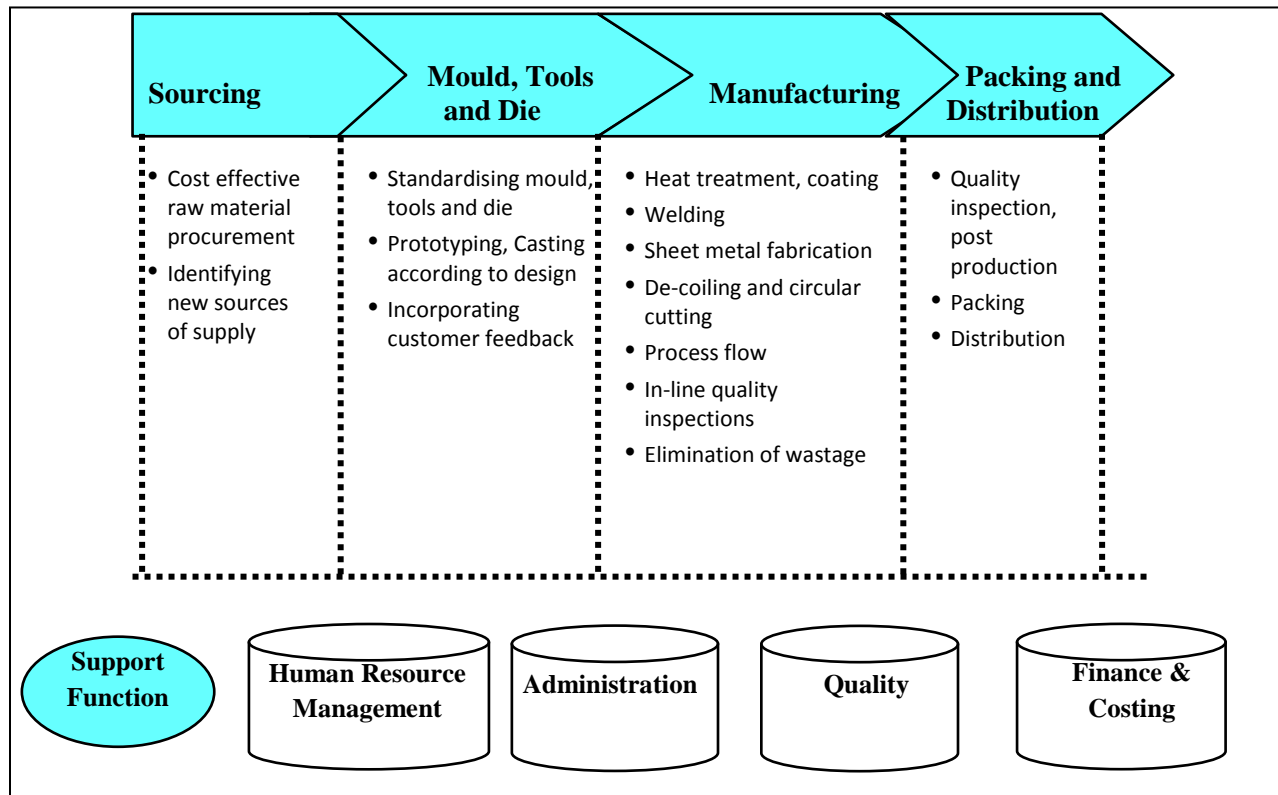
*Source: Primary Discussion with Companies*

The light engineering industry in the state is characterised by production activity with most of the companies having centralised sales, marketing and research and development functions. Further, local recruitment from within the state usually happens for entry and junior executive levels. Middle and senior level professionals are generally sourced from Punjab, Haryana and Delhi. Limited availability of technical resources is a major deterrent in development of research and design function in the industry.

### **Value Chain**

Typical activities carried out as part of the light engineering industry in the state are sourcing of materials, moulding, tooling and die operations, manufacturing processes such as heat treatment, coating, welding, sheet metal fabrication, de-coiling and circular cutting, and packing and distribution. The critical support functions include administration, finance and costing and quality check.

**Figure 36 Value Chain in Light Engineering Industry**



### *Profile of Workforce*

IMaCS has analysed the respective roles and responsibilities of different level of people in the light engineering value chain as shown in Table 28.

**Table 34 Profile of workforce in Light Engineering Industry**

Level	Qualification	Key function
Level 1 - Helpers	Usually with no formal schooling	Support for production activities  Simple jobs such as drilling, rough machining, assisting operators, moving raw materials and finished goods
Level 2 - Operators	12 <sup>th</sup> pass having few years of experience or fresh ITI students - Machinists, turners, fitters, welders	Machine operation and supervision  Support for maintenance of machines

Level 3 – Line / Shift Supervisor	Engineers (degree or diploma holders) with 1-2 years experience in small companies  Engineers (degree or diploma holders in Production) with >5 years of experience in large companies	Supervision of Operators  Minimising defective products in batch  Supervising periodic maintenance to prevent downtime  In charge for a line / shift depending on scale of operations
Level 4- Production Manager	Engineers (degree or diploma holders) with more than 10 years of experience	Complete production planning  Co ordination with Shift Engineers for process compliance, minimizing defect  International certifications such as TQM, TPM, ISO certifications

### ***Skill Requirements and Skill Gaps Observed***

IMaCS has analysed the skill required at various levels of the organisation to execute the assigned roles and responsibilities.

#### **Level 1- Helpers**

- ***Functional skills***
  - Ability to read and write
  - Ability to handle basic tools
  - Basic understanding of working norms and need for discipline at workplace
- ***Soft skills*** required are punctuality and ability to work in groups
- ***Skill gaps***
  - Absenteeism and lack of industrial culture
  - High involvement in union activities leading to disruptions in production

#### **Level 2 - Operators**

- ***Functional skills:***
  - Ability to perform processes given to them by reading and understanding drawings and drawing process sequence for achieving desired output

- Conversant with modern welding techniques such as Submerged Arc Welding and destructive and non-destructive testing
- Understand quality norms and parameters such as tolerance levels, tensile strength, weld strength
- Awareness of pollution norms, wastage norms
- **Soft skills** required are sensitisation towards work discipline and ability to work in teams
- **Skill gaps**
  - Lack of exposure to CNC machines which are fast becoming popular in manufacturing industry
  - Lack of exposure to modern welding techniques such as submerged arc welding, gas metal arc welding in the cylinder and automobile industry
  - Lack of understanding of non destructive testing

### **Level 3 – Line / Shift Supervisor**

- **Functional skills:**
  - Strong technical trouble shooting skills for guiding and mentoring operators
  - Knowledge of production processes as well as possible bottlenecks
  - Ability to carry out periodic maintenance measures
  - Awareness about market dynamics for a particular product
- **Soft skills** required are Leadership and conflict management to maintain a cordial working atmosphere on the shop floor.
- **Skill gaps**
  - Supervisors are non -conversant with modern production techniques such as JIT, TPM
  - Lack of orientation towards adhering to production schedules and quality control

### **Level 4 - Production Manager**

- **Functional skills**
  - Knowledge of production processes, Ability to manage operating costs
  - Knowledge of new technologies and their technical and business implications
  - Understanding of related aspects of production - safety, quality, pollution control
- **Soft skills** required are strong people management and administrative skills

- **Skill gaps**
  - Experienced himachalis for these functions are not easily available, hence employees are recruited from outside in high-skilled industries
  - Low skilled small scale industries managed by sole proprietors

### **Quality**

- Key responsibilities of the function involve:
  - Implementation of Quality Plans as per documented procedures due to quality certifications
  - Quality checks, inspection of equipment and certification as per schedule
  - Training of employees on quality parameters
  - Inspect raw material, conduct vendor quality rating and give feedback to purchase
- Required Skills include:
  - Knowledge of various quality tests, parameters and properties of raw materials
  - Knowledge of various quality certifications such as QS9000
  - Networking with all departments involved in production - raw material procurement, production, packaging etc

### **Purchase**

- Key responsibilities of the function involve:
  - Arranging materials as per requirements
  - Preparing and approving purchase documents
  - Negotiation for rates and ensuring on-time deliveries at acceptable quality
- Skills Required:
  - Strong knowledge of production requirements and properties of raw material
  - Proper documentation skills
  - Good networking skills
  - Strong communication and bargaining skills

## **5.2.3. Information Technology**

### **Introduction**

Information Technology industry in India has become one of the largest employment provider primarily at the low end of the value chain which involves processes in voice and non-voice based services, more commonly known as IT Enables Services. The industry today is the biggest foreign exchange earner for



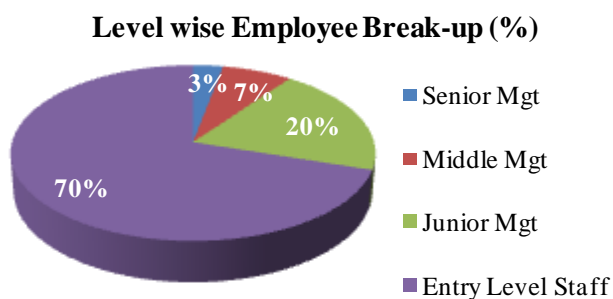
the country riding on the success of large scale outsourcing to India owing to its low cost high quality technical workforce. The industry is expected to grow at a rapid pace in future as well with growth of the industry now spreading to Tier 2 and Tier 3 towns apart from leading commercial towns of India. The prime factors expected to shape the IT / ITES industries are discussed below:

- Competition from other emerging countries such as China, Philippines, Indonesia, Latin American countries
- Availability of low cost, English speaking human resource
- Policy support and incentives by Central and State Governments
- Spread of the industry to more cheaper interior towns and cities to sustain the cost advantage and compete successfully against other low cost countries

### ***Human Resource***

IT / ITES industry is vastly underdeveloped in Himachal Pradesh with only a few small companies in operation today. However, availability of vast pool of graduates, English speaking population can encourage development of ITES industry initially. IT industry would absorb local population at junior levels in the initial stages while recruiting skilled professionals at supervisory level from outside. However, the development of industry would encourage skill development in the local population and prepare them for assuming middle and senior level positions in organisational hierarchy. The graph below provides a break up of human resources according to hierarchy and function in a typical company in information technology industry based on our interaction with such companies in the state and outside it.

**Figure 37 Human Resource Break-up in IT Industry**



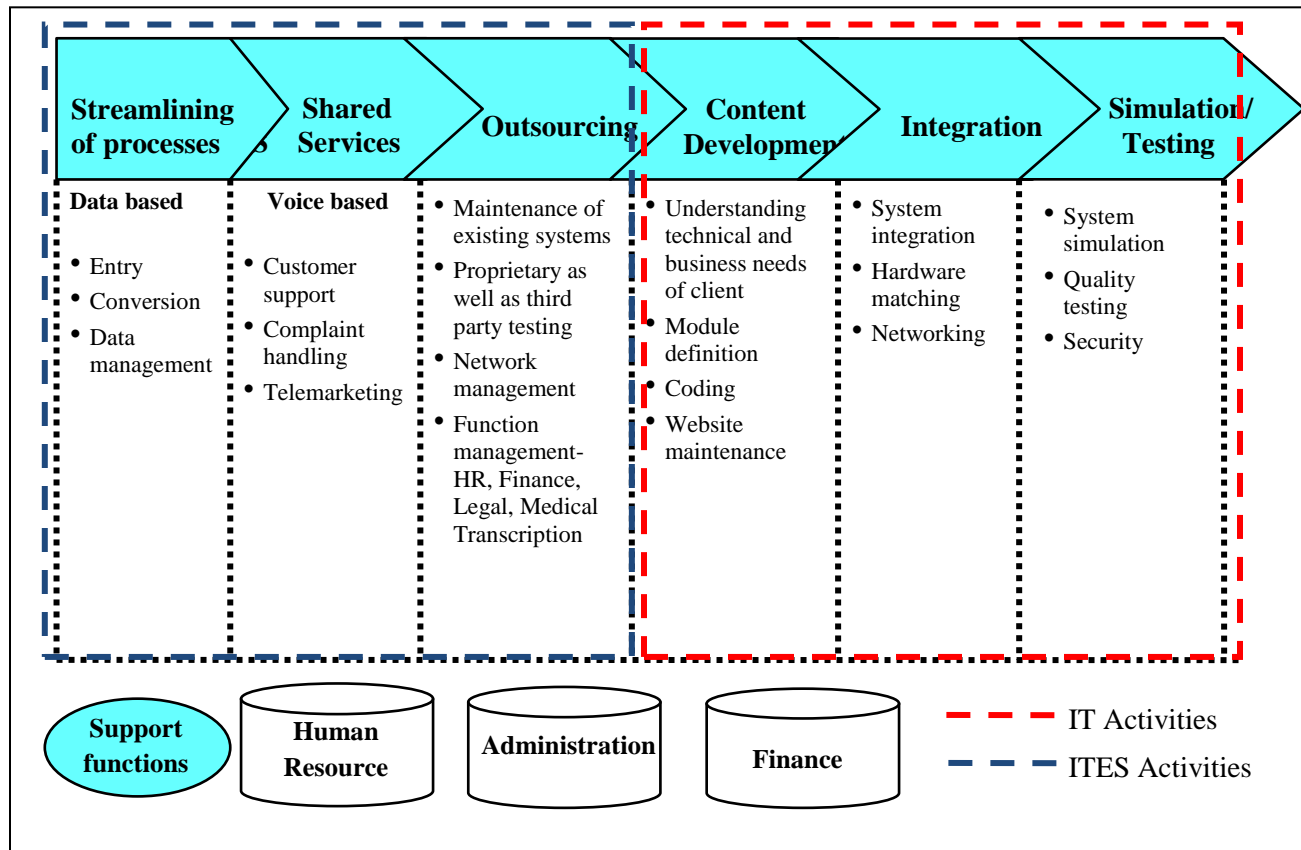
*Source: Primary Discussion with Companies*

### ***Value Chain***

Typical activities carried out as part of the information technology industry in the state are voice based and non voice (data) based support services. Owing to the nature of existing education infrastructure in

the state, it is expected that companies at the initial level of value chain involving voice and data based services can be attracted to the state. While companies at higher level of IT value chain primarily involved in software development can also be attracted on the principles of cost advantage, but it is not expected to generate direct employment opportunity for local population at large scale. The critical support functions include administration, finance and human resource management.

**Figure 38 Value Chain in Information Technology Industry**



**Profile of Workforce**

IMaCS has analysed the respective roles and responsibilities of different level of people in the information technology value chain as shown in Table 29.

**Table 35 Profile of workforce in Information Technology Industry**

<b>Level</b>	<b>Qualification</b>	<b>Key function</b>
Level 1 - Executive	<p><b>ITES</b></p> <p>Graduates with reasonable communication skills</p> <p>Functional skills depending upon BPO business line (Telemarketing, Finance, Legal, Medical)</p> <p><b>IT</b></p> <p>Certification in Programming languages</p>	<p>In bound / Out bound calls</p> <p>Data entry / conversion, Content development</p> <p>Coding, Software Testing</p>
Level 2 – Team Lead	<p><b>ITES</b></p> <p>Graduates / Engineers with experience in Project Management</p> <p><b>IT</b></p> <p>Engineers/BCAs/MCAs with 2-3 years work experience as Team Lead</p>	<p>Handling team of 10-15 executives</p> <p>Process &amp; Timelines Compliance</p> <p>Quality control</p> <p>Programming / Testing</p>
Level 3 – Project Manager/Process Manager	<p><b>ITES</b></p> <p>Graduates / Post graduates / Engineers with 4-5 years experience</p> <p><b>IT</b></p> <p>Graduates / Postgraduates / MCAs with 5-6 years of work experience as Team Lead / Module Lead / Functional Consultant</p>	<p>Software Architecture</p> <p>Resource planning and allocation</p> <p>Client Engagement</p> <p>People management</p>

Level 4 – Area Manager/Group Leader	<p><b>ITES</b></p> <p>Graduate/Engineers/CAs with 8-12 years experience</p> <p><b>IT</b></p> <p>Engineers/MCAs with 8-10 years exp</p>	<p>Overall control of one line of business or one set of clients</p> <p><b>This level is / shall not be staffed locally</b></p>
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### ***Skill Requirements and Skill Gaps Observed***

IMaCS has analysed the skill required at various levels of the organisation to execute the assigned roles and responsibilities.

#### **Level 1 – Executive**

##### **ITES**

- ***Functional skills:***
  - Reasonable command over English language
  - Ability to learn and adhere to processes and workflows.
  - Exposure to software such as CRM, Microsoft Office
  - Problem solving skills
- ***Soft skills*** required involve willingness to work night shifts, good listening skills and aptitude to perform repetitive tasks

##### **IT**

- ***Functional skills:***
  - Programming in C, C++, Java
  - Understanding and conversion of Data flow diagram(DFD) and High level diagram(HLD) into modules
  - Relational Database Management Systems
  - Analytical skills
- ***Soft skills*** require ability to work in cross-functional teams
- ***Skill gaps***
  - Poor keyboard and MS Office skills
  - Inadequate process compliance

- Lack of attention to details and understanding of basic quality initiatives
- Not efficient at multi tasking
- Poor communication skills, spoken English capabilities
- Lack of result orientation

## **Level 2 - Team Lead**

- **Functional skills:**

- Programming skills in different languages for IT
- Simple software applications and spreadsheet management for ITeS
- Knowledge of Quality Controls
- Attention for detail
- Turnaround Time
- Process Compliance

- **Soft skills** required are:

- Leadership skills
- People management
- Good Communication skills and active listening skills
- Regional accent understanding
- High energy level and emotional intelligence

- **Skill gaps**

- Insufficient comprehension skills and awareness of process compliance
- Lack of sufficient expertise in programming skills, especially in the modern programming languages such as Java, Microsoft .Net
- Lack of emotional intelligence to handle conflict and stress
- Lack customer management skills

## **Level 3 - Process Manager**

- **Functional skills:**

- Knowledge of process as well as costing and related issues
- Business Networking
- Conceptualisation and Visualisation skills
- Problem solving
- Process Compliance

- **Soft skills** required are:
  - Emotional intelligence
  - High energy level
  - Conflict management
  - High level of perseverance
  - Aptitude for repetitive role
  - Good communication and active listening skills
  
- **Skill gaps**
  - Lack of innovative thinking
  - Lack of problem solving skills and ownership of process / project
  - Lack of awareness about developments in the industry concerning type of projects, evolving business models, value addition

### **Finance**

- Key responsibilities involve MIS, billing, book-keeping
- Skills required include knowledge of accounting applications and adherence to timelines

### **Human Resource**

- Key responsibilities include
  - Reducing attrition rate,
  - Defining and developing HR processes and policies
  - Conducting training and development program for employees
  
- Skills required include
  - Compensation and Benefits management
  - Understanding of business requirements to ensure recruitment of quality manpower

### **Administration**

- Key responsibilities include
  - Ensuring uninterrupted connectivity
  - Adequate office supplies and service support for trouble shooting
  
- Skills required include
  - Co-ordination with other functions,



- Process streamlining for cost efficiencies and
- Understanding of IT applications

## **5.2.4. Agro-based Industry**

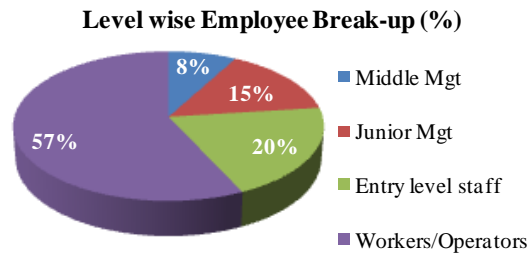
### ***Introduction***

India has a significant contribution of primary sector in the overall GDP of the economy. Owing to its leadership position as main producer of key food grains and horticulture crops, there is an immense scope of agro-based industries in India. Many companies are engaged in food processing activities at large scale to cater to the demand of international markets. However, the processing plants are located at a distance from the main area of produce which has resulted in complex set of logistics infrastructure in the country. The rising share of organised retail in food and grocery segment is expected to drive the growth of the industry in most of the agricultural clusters in India. Himachal Pradesh has traditionally been an agriculture driven economy, which has attracted the attention of large number of players in the agro-procurement and processing. The districts of Kangra, Hamirpur and Bilaspur are poised to be developed as agro-processing zones owing to favourable topography and proximity to markets. Kinnaur is one of the largest suppliers of agri-produce but lacks storage infrastructure due to rough terrain. Shimla and Kullu have emerged as preferred locations for storage due to easy accessibility and can be developed further. This section focuses on agro-procurement industry as that is expected to be a major thrust area.

### ***Human Resource***

Himachal Pradesh has been primarily an agrarian economy with emphasis on horticulture. This has ensured that skill gaps required in the industry are not as widespread compared to other industries such as pharmaceutical, light engineering and textiles etc. The agri-procurement industry is at a nascent stage and typically employs two supervisors for each Controlled Access Storage Unit (CAS) forming the middle management level. Further, the supervisors are recruited locally due to knowledge about local produce and other aspects. Entry level clerks, procurement agents and maintenance staff is recruited locally.

**Figure 39 Human Resource Break-up in Agro-procurement Industry**

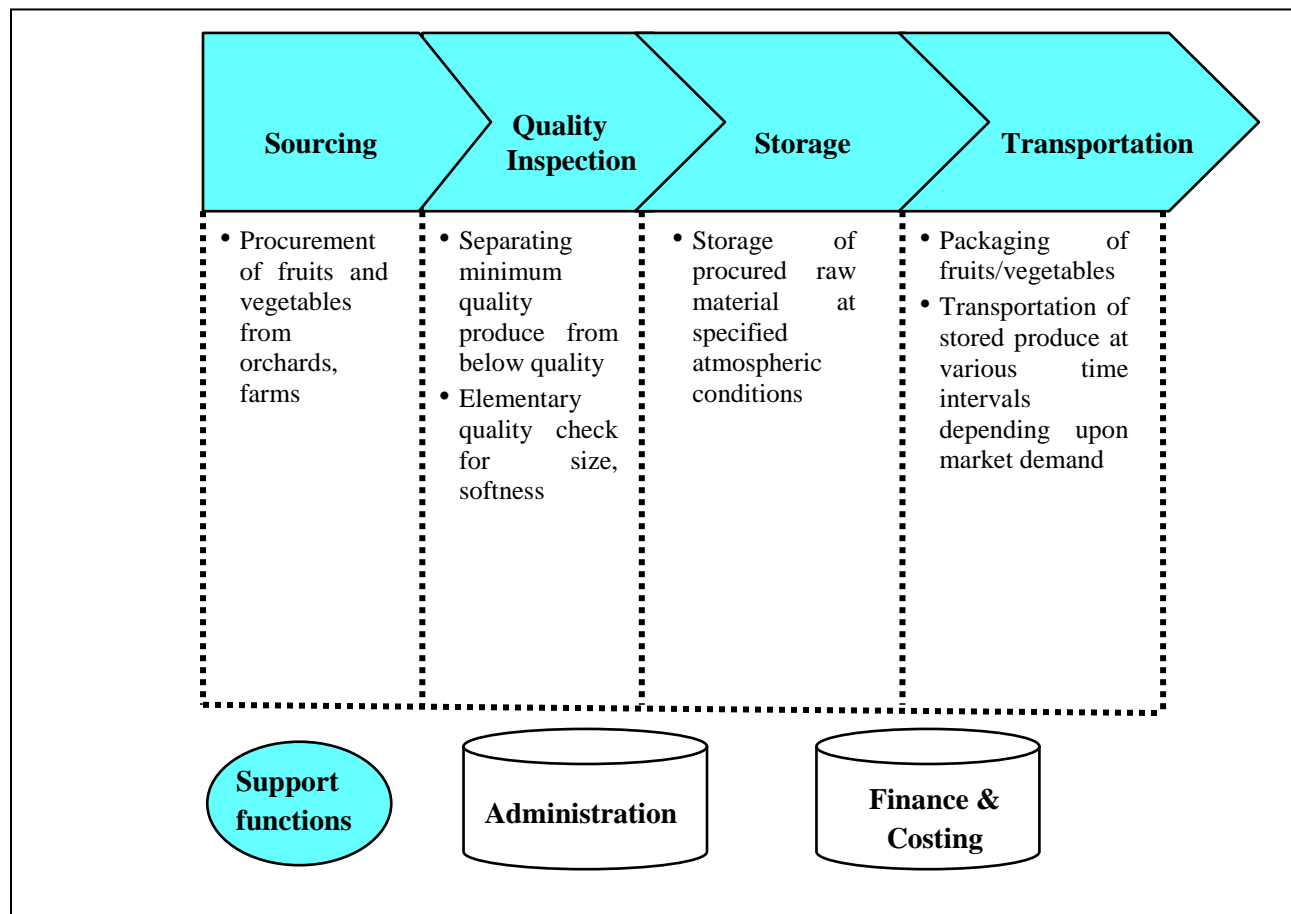


*Source: Primary Discussion with Companies*

**Value Chain**

Typical activities carried out as part of the agro-processing industry in the state are sourcing, quality inspection, storage and transportation. Owing to the inherent nature of economy, the industry is expected to register a strong growth on the back of increasing share of organised retail in the country. Key support functions in the industry are Administration and Finance and Costing

**Figure 40 Value Chain in Agri-procurement Industry**





### *Profile of Workforce*

IMaCS has analysed the respective roles and responsibilities of different level of people in the agro-procurement value chain as shown in Table 30.

**Table 36 Profile of workforce in Agro-procurement Industry**

<b>Level</b>	<b>Qualification</b>	<b>Key function</b>
Level 1 - Helpers	No formal professional education  Exposure to farm produce	Procurement of fruits, vegetables  Rudimentary quality check
Level 2 – Operators	ITI graduates (freshers and experience)	Maintenance of Controlled Atmosphere Storage (CAS) units
Level 3 - Supervisors	Food Technologists / M.Sc in Horticulture  Engineer (Refrigeration, Electrical)	Supervision and maintenance of CAS units  Ensuring quality control of agri produce with regards to temperature, packaging and transportation  Educating the unskilled workers about the basics of horticulture

### *Skill Requirements and Skill Gaps Observed*

IMaCS has analysed the skill required at various levels of the organisation to execute the assigned roles and responsibilities.

#### **Level 1 - Helpers**

- **Functional skills:**
  - Exposure to various farm produce of Himachal such as apples, mangoes, walnut etc.
  - Ability to differentiate between different quality grades based on size and other normative approaches

- **Soft Skills**
  - Disciplined approach at work
- **Skill Gaps**
  - Do not face much issues at this level as locals have sufficient exposure to farm produce

## **Level 2 - Operators**

- **Functional skills:**
  - Strong technical knowledge about HVAC systems
  - Ability to adapt to newer storage technologies
  - Sensitisation to quality control
- **Soft Skills**
  - Willingness to work at odd hours
- **Skill Gaps**
  - Lack of knowledge about HVAC / cold storage, very limited people with technical qualification in this area
  - Lack problem solving skills, not able to identify and plug the problems
  - Lack initiative to learn and adopt new technologies

## **Level 3 - Supervisor**

- **Functional skills:**
  - Technical skills related to Food technology – different types of atmospheres required for storage, shelf lives, and diseases.
  - Awareness about HVAC systems in controlled atmosphere storage and awareness of newer storage technologies
  - Ability to contain operational costs
- **Soft Skills**
  - Motivational skills are critical at this function since most of the CAS units are located far from urban setups and the employee morale needs to be sustained.
- **Skill Gaps**
  - Lack leadership and team-management skills

- Lack innovation to improve work process flow in CAS storage units

### **Administration**

- ***Key responsibilities include***

- Proper upkeep of storage units to maintain hygiene, MIS and record-keeping to ensure correct stock position

- ***Skills Required include***

- Computer proficiency and knowledge of IT applications is a necessary skill

### **Logistics**

- ***Key responsibilities include***

- Maintenance of vehicles to ensure hygienic surroundings during produce transport and safe loading and unloading of goods

- ***Skills Required include***

- Only basic reading and writing abilities

## **5.2.5. Textile**

### ***Introduction***

The textile industry occupies a unique place in the country. One of the earliest industries to come into existence in India, it accounts for 14% of the total industrial production, contributes to nearly 30% of the total exports and is the second largest employment generator after agriculture. India has natural advantages which can be capitalised on such as strong raw material base of cotton, man-made fibres, jute, silk, large production capacity (spinning - 21% of world capacity and weaving - 33% of world capacity but of low technology), vast pool of skilled manpower, entrepreneurship, flexibility in production process, and long experience with US / EU (European Union). The development of textile industry in India is expected to be impacted by following forces:

- Huge opportunity arising due to dismantling of quotas
- Stringent quality standards and dynamics of the export market
- Integration of value chain (spinning with weaving, dyeing)

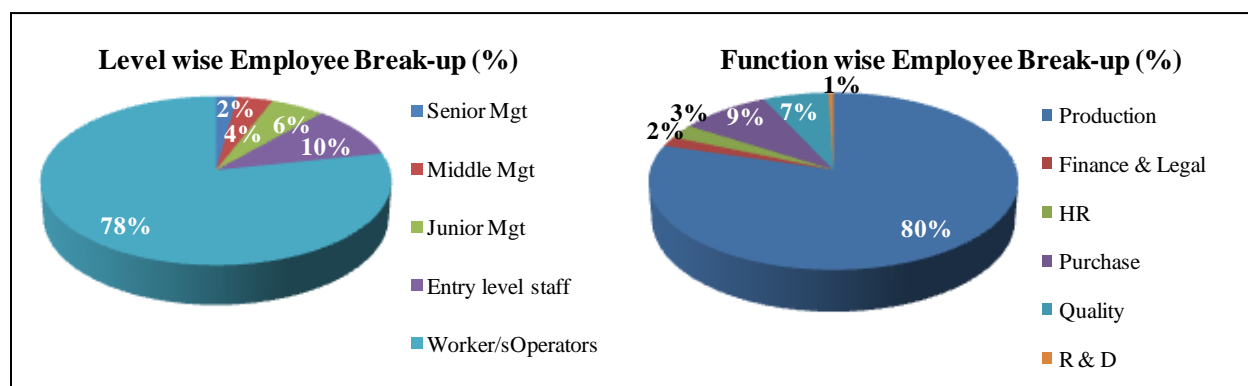
- Growth of organised retail
- Rupee appreciation diluting the cost arbitrage opportunities

### **Human Resource**

Textile industry in Himachal Pradesh is mainly concentrated in spinning operations with few small scale units in fabric processing and garmenting. However, fabric processing operations are highly labour intensive and hence provide employment avenues for a lot of students with non-engineering background. Presently, Kullu and Kangra have a substantial presence of small scale weaving and handloom industries primarily engaged in the production of world renowned Kullu Shawls.

Textile industry has been present in Himachal Pradesh for sometime but the transition to value added products is still not widespread. Further, approximately 80% of the workforce in the industry is at the worker/operator level comprising mainly of workers from Himachal Pradesh, Uttar Pradesh and Bihar. Employees at all the management levels are from outside states or have been deputed from the respective Head Offices.

**Figure 41 Human Resource Break-up in Textile Industry**

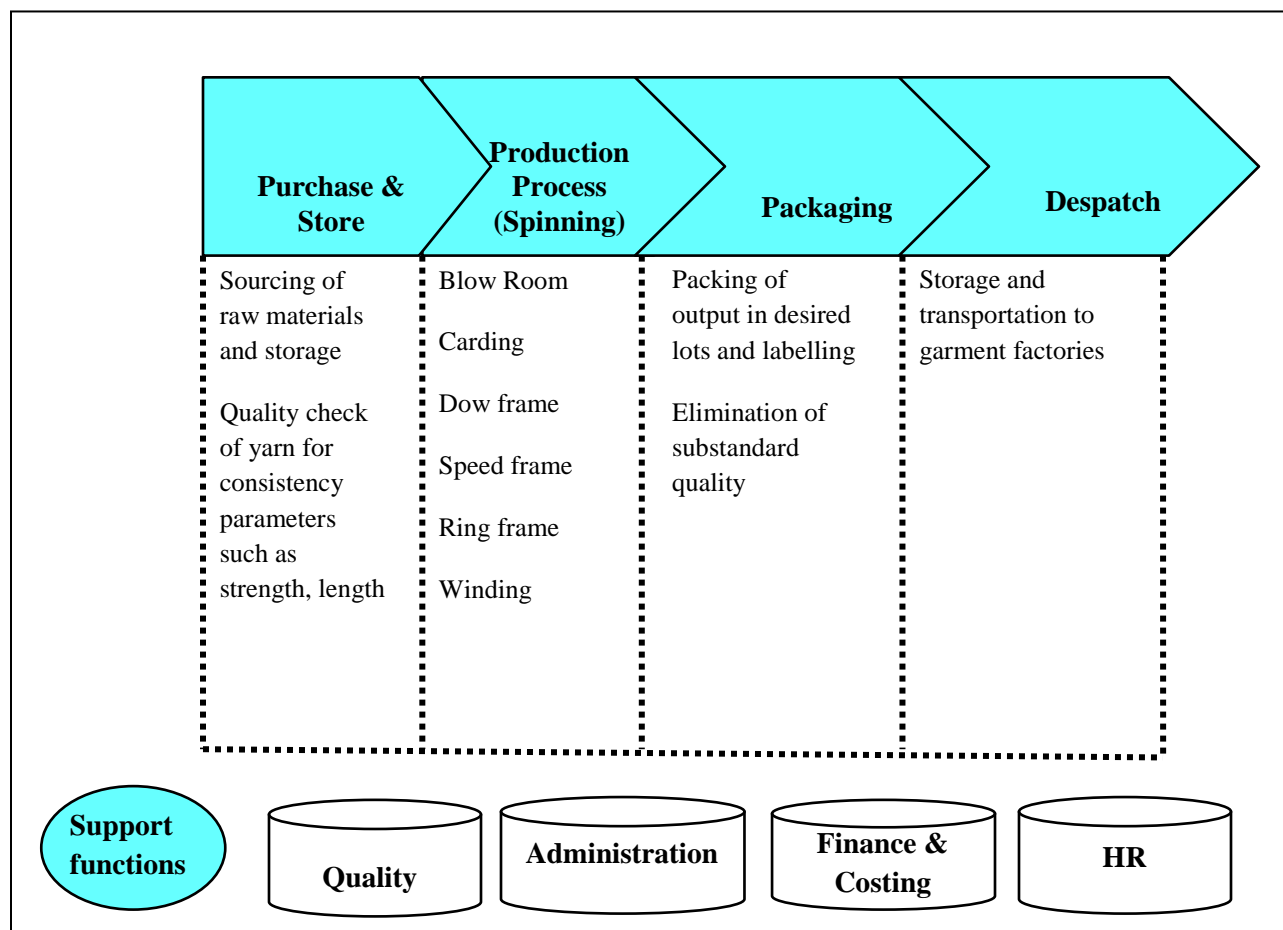


Source: Primary Discussion with Companies

### **Value Chain**

Typical activities carried out as part of the textile industry in the state are spinning operations which forms the very first step in the textile value chain. Key support functions in the industry are Administration, Quality, Human Resource and Finance. Typical activities carried out as part of the textile industry in the state are discussed in Figure 36.

Figure 42 Value Chain in Textile Industry



### Profile of Workforce

IMaCS has analysed the respective roles and responsibilities of different level of people in the textile industry value chain as shown in Table 31.

Table 37 Profile of workforce in Textile Industry

Level	Qualification	Key function
Level 1 - Helpers	No formal professional education	Moving, handling of raw material and finished product from and to stores Assistance in production

Level 2 – Operators / Clerks	<p>ITI - Machinists, fitters, electricians, welders</p> <p>Diploma holders</p> <p>Graduates</p>	<p>Spindle operation, repair and maintenance</p> <p>Raw material mixing</p> <p>Store keeper</p> <p>Shop floor studies like costing, quality investigation etc</p>
Level 3 – Line Monitor	<p>Fresh Engineers / Diploma holders in civil, mechanical, electrical, textile disciplines with 1-2 experience in textile industry</p>	<p>Supervision of operators</p> <p>Identify avenues for waste elimination/cost reduction</p> <p>Ensure compliance to production schedule and safety norms</p> <p>Rectify machine breakdowns /supervise periodic maintenance</p> <p>Provide feedback to shift engineer</p>
Level 4 – Shift Engineer	<p>B Tech / Diploma holders in Mechanical / Textile Engg. with experience 3-5 years experience</p>	<p>Devise targets and production schedules in consultation with Plant Manager</p> <p>Devise periodic maintenance schedule</p> <p>Purchase – design and quality parameters for raw materials, identify sources for cost reduction, maintain supplier relationship</p>
Level 5 – Plant Manager	<p>B Tech with more than 10 years of experience( pref. Textile engineering)</p>	<p>Assessment and Implementation of new technologies and processes</p> <p>Liaison with senior management</p> <p>Maximise profitability</p> <p><i><b>This position is not recruited locally.</b></i></p>

### ***Skill Requirements and Skill Gaps Observed***

IMaCS has analysed the skill required at various levels of the organisation to execute the assigned roles and responsibilities.

#### **Level 1 - Helpers**

- ***Functional skills:***
  - Basic reading, writing skills
  - Observation skills to detect deviations from normal operations
- ***Soft skills***
  - Punctuality, willingness to work overtime and disciplined approach at work is the primary soft skill required.
- ***Skill Gaps***
  - Absenteeism and lack of industrial culture
  - Lack of work discipline leads to disruptions in production

#### **Level 2 – Operators / Clerks**

##### **Operators**

- ***Functional skills:***
  - Understand instructions for mixing of raw materials
  - Understanding of manufacturing flow
  - Strong quality and wastage reduction orientation
  - Acute awareness of safety hazards
- ***Soft skills:***
  - Aptitude to work on repetitive jobs and self motivation are prerequisites for the function

##### **Clerks**

- ***Functional skills***
  - Understanding of spinning process
  - Knowledge of costing for shop floor studies

- Coordinating with various departments and undertaking quality checks on machines; raw material on specified parameters; yarn for length and consistency
- **Soft skills:**
  - Co-ordination skills and ability to do repetitive jobs
- **Skill Gaps**
  - Limited ability to learn and adapt to new technologies
  - Fitters from ITIs have insufficient knowledge specific to maintenance of spinning equipment, blow room, ring frames etc
  - Lack of commercial orientation in wastage reduction
  - Non-ownership and reluctance to work overtime to meet production targets
  - Insufficient knowledge of computers and quality assurance process among clerks

### **Level 3 - Line Monitor**

- **Functional skills:**
  - Knowledge of production process
  - Co-ordination with shift engineer during breakdown and maintenance
  - Ability to quickly understand new technologies for better response during breakdown
  - Ability to lead a team of operators
- **Soft skills:**
  - Problem-solving aptitude, empathy and good communication skills
- **Skill Gaps:**
  - Lack of problem solving skills arising due to machinery breakdown
  - Low emphasis on quality and waste control
  - Non-satisfactory theoretical knowledge related to production process in textiles

### **Level 4 - Shift Engineer**

- **Functional skills:**
  - Knowledge of production planning so as to design production schedules
  - Information about new technologies
  - Ability to identify quality issues and resolve
  - Technical knowledge of machines in Blow Room, Carding, Dow frame, Auto corner etc



- **Soft Skills:**
  - Team player and people management
- **Skill Gaps:**
  - Low availability of experienced manpower.
  - Inability to keep pace and grasp functional knowledge for latest technology
  - Lack of commercial orientation
  - Lack of team building and leadership skills
  - Mostly position is staffed from outside HP due to lack of experienced professional

### **Quality**

- **Key responsibilities include**
  - Developing Standard Operating Procedures,
  - Work-process flow and supervising adherence;
  - Training the staff about safety standards to be adopted;
  - Ensuring proper effluent discharge
  - Regular checking of raw materials for consistency in thickness and weight
- **Skills required are**
  - Technical knowledge about products and laboratory operations to check spurious materials
  - Enhance the knowledge about best practices and norms followed elsewhere
  - Ability to communicate importance of quality adherence to the operating staff

### **Finance and Administration**

- Key responsibilities include
  - MIS reporting, budgeting and liasoning with suppliers.
- Skills required are
  - Co-ordination with other functions
  - Ability to adhere to timelines for MIS reports
  - Understanding of IT application and accounting software

## 5.2.6. Tourism and Hospitality Industry

### *Introduction*

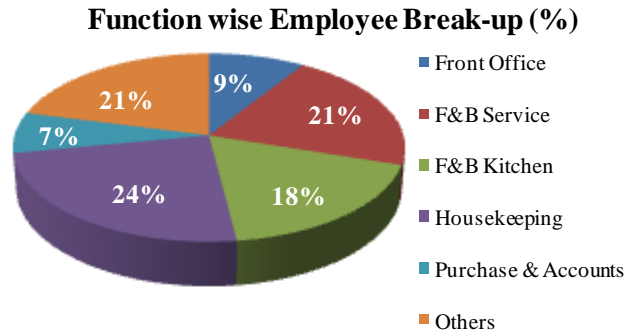
India's tourism industry is growing due to an increase in foreign tourist's arrivals and greater than before travel by Indians to domestic and abroad destinations. The most important reasons for the buoyancy in the Indian tourism industry among others are an upward trend in the income levels of middle class, upsurge of India as hub for information technology industry and aggressive advertising campaign "Incredible India" by the central government. While the growth in tourism has been impressive, India's share in total global tourism arrivals and earnings is quite insignificant. The diversity of India's natural and cultural richness forms the basis of a wide range of tourist experiences such as business, leisure, culture, adventure, spirituality, eco-tourism and many others. The forces at work in the tourism and hospitality industry are:

- Rise of professional tour operators providing end to end travel solutions
- Rise of theme tourism due to diverse geographies and cultures
- Policy initiative and wide scale promotion by GOI.
- Increase in per capita disposable income of the domestic tourist.

### *Human Resource*

The tourism and hospitality industry consists of three distinct components: ***Hotels, Tour Operators and Logistic providers***. Within the state, Kullu, Shimla and Kangra are the most visited tourist destinations. The state offers a wide variety of theme tourism from religious to adventure, leisure and eco tourism. Kinnaur and Lahaul and Spiti have a lot of potential to be developed as Buddhist circuit in religious tourism. The industry needs a focused development approach in terms of marketing and product development, infrastructure for accommodation and wayside amenities and in improving connectivity to distant destinations. Due to the above reasons, the industry is dominated by standalone hotels with only few national hotel chains in key tourist places. The travel operators and logistic providers are small scale operations essentially comprising of a proprietor and few dealers / drivers. However, detailed function wise employee break-up in hospitality industry in Himachal Pradesh is as shown below:

**Figure 43 Human Resource Break-up in Hospitality Industry**

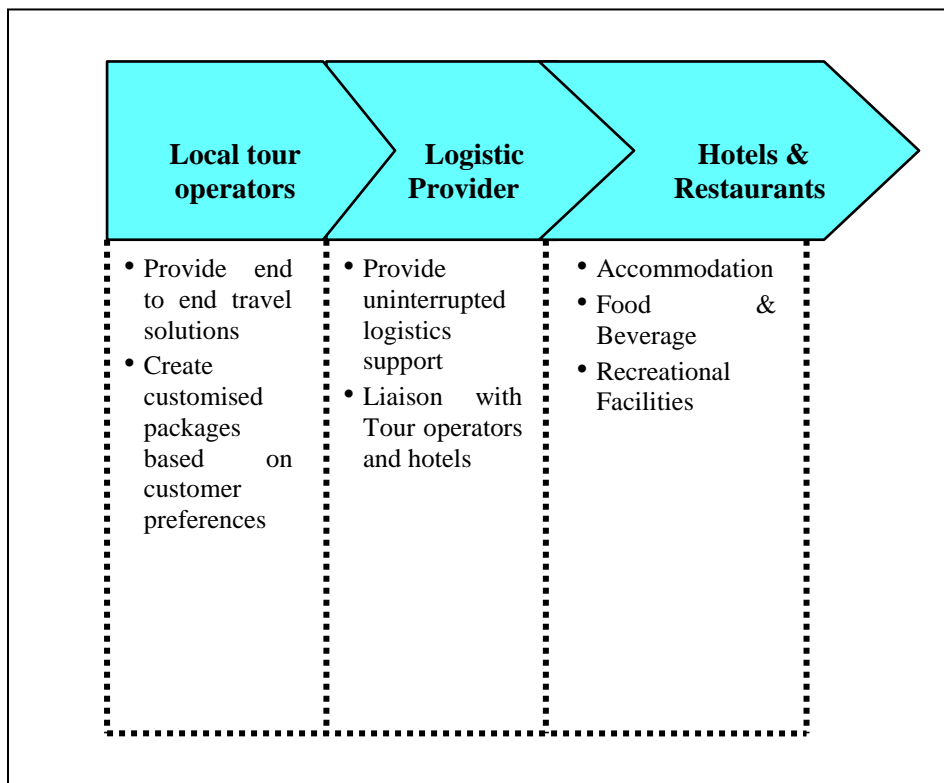


*Source: Primary Discussion with Companies*

**Value Chain**

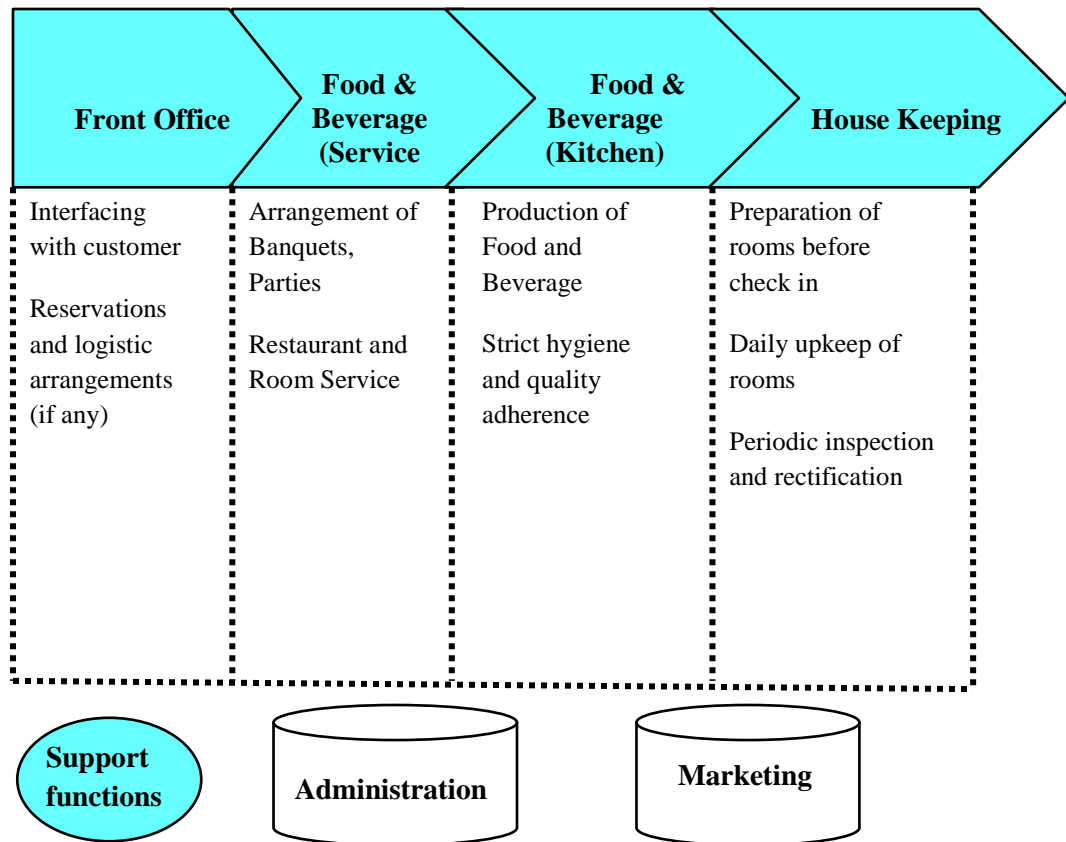
Typical activities carried out as part of the tourism and hospitality industry are clearly segregated into three parts: Tour operators, Logistics Providers and Hotels & Restaurants. Typical activities carried out as part of the industry in the state are discussed in Figure 38.

**Figure 44 Value Chain in Tourism & Hospitality Industry**



Hospitality industry has an elaborate value chain which is detailed in Figure 39. Tourism is a seasonal industry and consequently a lot of hotels employ attendants on an ad-hoc basis. The middle management of the hotels is typically recruited from outside the state. These constitute people from other states as well as locals who have worked and gained experience in other cities. Marketing as a function is handled at the national level as most of the hotel chains have centralised marketing offices whereas standalone hotel have tied-ups with tour operators nationally who handle the marketing for them.

**Figure 45 Value Chain in Tourism & Hospitality Industry**



**Profile of Workforce**

IMaCS has analysed the respective roles and responsibilities of different level of people in the hospitality industry value chain as shown in Table 32.

**Table 38 Profile of workforce in Hospitality Industry**

Level	Qualification	Key function
Level 1 – Attendants	No formal professional education but minimum high school pass	Support in housekeeping and general hotel maintenance Assistance in luggage handling
Level 2 – Semi skilled	Professional course (for waiters/cooks etc) from Food craft Institute or relevant work experience in case of Front Office  ITI graduates usually for maintenance	Support in F&B kitchen and service  House Keeping  ITI for maintenance
Level 3 – Supervisors	Graduates with Diploma/Degree in Hotel Management  Certificate in Cookery and Servicing from Food Craft Institutes for F&B	Customer Interface at Front Desk and Housekeeping  Chefs, Captains and Servicing Managers
Level 4 - Manager	Graduates with relevant experience (6+ years)	Responsible for one complete function in higher star-categories and overall in charge for lower star categories

### *Skill Requirements and Skill Gaps Observed*

#### **Hospitality**

##### **Level 1 - Attendants**

- **Key responsibilities include:**
  - *Front office* – valet parking, luggage handling
  - *F&B* – Assistance in cleaning and clearing utensils
  - *Housekeeping* – Cleaning of premises, dusting of rooms, preparation before and after checkout
- **Functional skills:**

- Basic understanding of working norms, etiquettes and need for discipline at workplace
- Punctuality
- Maintaining personal hygiene
- **Soft skills:**
  - Patience and ability to interact with customers (especially in customer-facing roles)
- **Skill Gaps:**
  - Improper behavior in front of customers across all the functions

## Level 2 - Semi-skilled

- **Key responsibilities include**
  - *F & B* – Attending room service calls and food preparation
  - *Front Office* – Assistance in room bookings, reservations, handling customer information requests
  - *House keeping* - General maintenance of room décor
  - *Repair and maintenance works*
- **Functional Skills:**
  - *F & B* - Cooking skills and exposure to various cuisines, Understanding and ability to articulate the menu & preparations to customers
  - *Front Office* - Understand and communicate various hotel service offerings such as category of rooms, cuisines on offer, leisure activities, other tourist information
  - *Repair & Maintenance:* Technical knowledge to undertake repair and maintenance of HVAC systems, electrical gadgets and civil works in hotel
  - *Housekeeping:* Follow Standard Operating manuals
- **Soft skills:**
  - Sensitisation to the need of grooming and presentation
  - willingness to work night shifts
- **Skill Gaps:**
  - Low technical knowledge about HVAC systems and other gadgets and problem solving skills
  - Poor customer orientation amongst F&B and front-office staff
  - Lack of knowledge about the product and service offerings

- Poor English speaking skills
- Difficulty in finding good quality diploma holders as very few reputed Food Craft Institutes

### **Level 3 - Supervisor**

- ***Key responsibilities include***

- *F&B*: Supervision of kitchen and service, ensuring hygiene and quality, innovation in cuisines, customer delight and service
- *Front Office*: Liaisoning with service providers such as logistics providers and tour-operators, impart training to fresh recruits and internship students, providing timely inputs to management with respect to occupancy and revenues, understanding customer expectations and competition

- ***Functional skills:***

- F&B – Awareness of different cuisine preferences of customers
- Developing standard operating manuals to ensure hygiene and consistent quality in kitchen and servicing
- Innovations in food preparation and servicing
- Front Office – Excellent communication skills
- Ability to understand customer needs and provide solutions for their requirements
- MIS and reporting to aid effective marketing

- ***Soft skills***

- People management skills,
- High energy levels

- ***Skill Gaps:***

- Not result oriented
- Lack of innovation with respect to food preparation and servicing
- Lack cultural sensitivity
- Inability to improve efficiency and co-ordinate with other departments and channel partners
- Difficulty in finding good quality Hotel Management graduates as private institutes graduates are very poor

### **Level 4 - Manager**

- ***Key responsibilities include:***



- Overall profitability of the hotel
  - Ensure highest occupancy rates
  - Customer handling in special situations such as group/ corporate bookings
  - Ensure compliance with regulatory norms
  - Understanding of the hospitality industry and related trends
- **Functional skills:**
    - Knowledge of complete operations and developing Operating Manuals with respective supervisors
    - Ability to identify and minimize costs
    - Knowledge of and compliance with relevant regulatory norms (Bar Timings, Waste water disposal, Operating Norms for different star-categories)
    - Innovations in product offerings and service delivery
    - Excellent communication skills
    - Business networking with corporate, tour operators and other service providers
  - **Soft skills:**
    - People management and leadership and motivational skills

### **Purchase & Accounts**

- **Key responsibilities include:**
  - Liaisoning with suppliers for F&B production, consumables for housekeeping while minimising cost and maintaining quality
  - Ensuring presence of sufficient stock
  - Maintaining accounts and preparing MIS reports.
- **Skills required:**
  - Co-ordination with other functions
  - Ability to adhere to timelines for MIS reports
  - Understanding of IT application and accounting software

### **Marketing**

- **Key responsibility:**
  - Ensure maximum occupancy and profitability of the property
- **Skills required:**



- Ability to foresee changes in customer preferences due to seasonality
- Decide room tariffs and promotions depending on tourist traffic along with Manager
- Ability to understand different customer demands arising due to difference in nationalities and providing regular feedback to Manager

### **Tour Operators**

- ***Key responsibilities include:***

- Provide end to end travel solutions from pickup to drop
- Creating tourist package including itineraries, co-coordinating with hotels
- Understand tourist requirements such as theme, budget, time constraints.
- Network with outside (both domestic and abroad) tour operators

- ***Requisite Skills:***

- Market understanding (local and target markets)
- Event management
- Route planning and optimisation
- Excellent sales and marketing skills
- Ability to develop attractive packages considering budget constraints and client preferences
- Ability to liaison with airline, hotels and local community
- People management skills
- Customer Relationship Management
- Computer Knowledge
- Certification from IATA and UFTA

- ***Skill Gaps:***

- Lack of knowledge of international route planning and optimisation
- Lack of qualified IATA personnel
- Lack of local market understanding and product development skills(in terms of tourist packages)
- Inability to liaison with other channel partners like airlines, hotels etc
- Minimal computer skills

### **Logistic Providers**

- ***Key responsibilities include:***

- Provide uninterrupted logistics support
- Ensuring safety for domestic and foreign tourists

- **Skills required:**
  - Understanding of local language and English speaking skills
  - Time management
  - Knowledge about various routes
  - Customer relationship management
  - Excellent trouble shooting skills
  - Well-behaved and ability to make clients comfortable
  
- **Skill Gaps:**
  - Lack professionalism
  - Limited knowledge about local tourist destinations – focus on few limited destinations without considering the tourists interests
  - Poor maintenance of vehicle
  - Lack business etiquettes

## 5.2.7. Cement

### *Introduction*

The cement industry comprises of 125 large cement plants and more than 300 mini cement plants with an estimated total capacity of 160 million tonnes per annum. Apart from meeting the entire domestic demand, the industry is also exporting cement and clinker. Though cement industry has been decontrolled from price and distribution on 1st March 1989 and de-licensed on 25th July 1991, the performance of the industry and prices of cement are monitored regularly. The growth in the cement industry is expected to be driven by several factors such as:

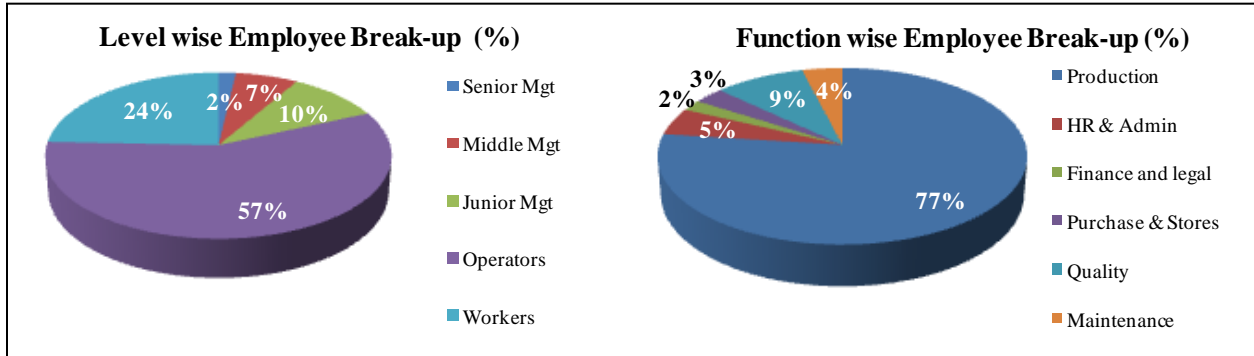
- Push to housing development programmes
- Promotion of concrete highways and roads
- Continuous technological upgrading and assimilation of latest technology
- Large scale geological surveys and allotment of mining rights in various states

### *Human Resource*

Cement industry in Himachal Pradesh is primarily concentrated in the districts of Bilaspur and Solan. Geological surveys are underway at various other sites in Chamba as well. A lot of companies find it difficult to recruit technical and experienced operators within state to comply with employment reservation policies. Most of the local people are employed at worker, entry level and junior level,

whereas middle and senior level positions are recruited from outside the state. However, detailed function wise employee break up in cement industry in Himachal Pradesh is as shown below.

**Figure 46 Human Resource Break-up in Cement Industry**

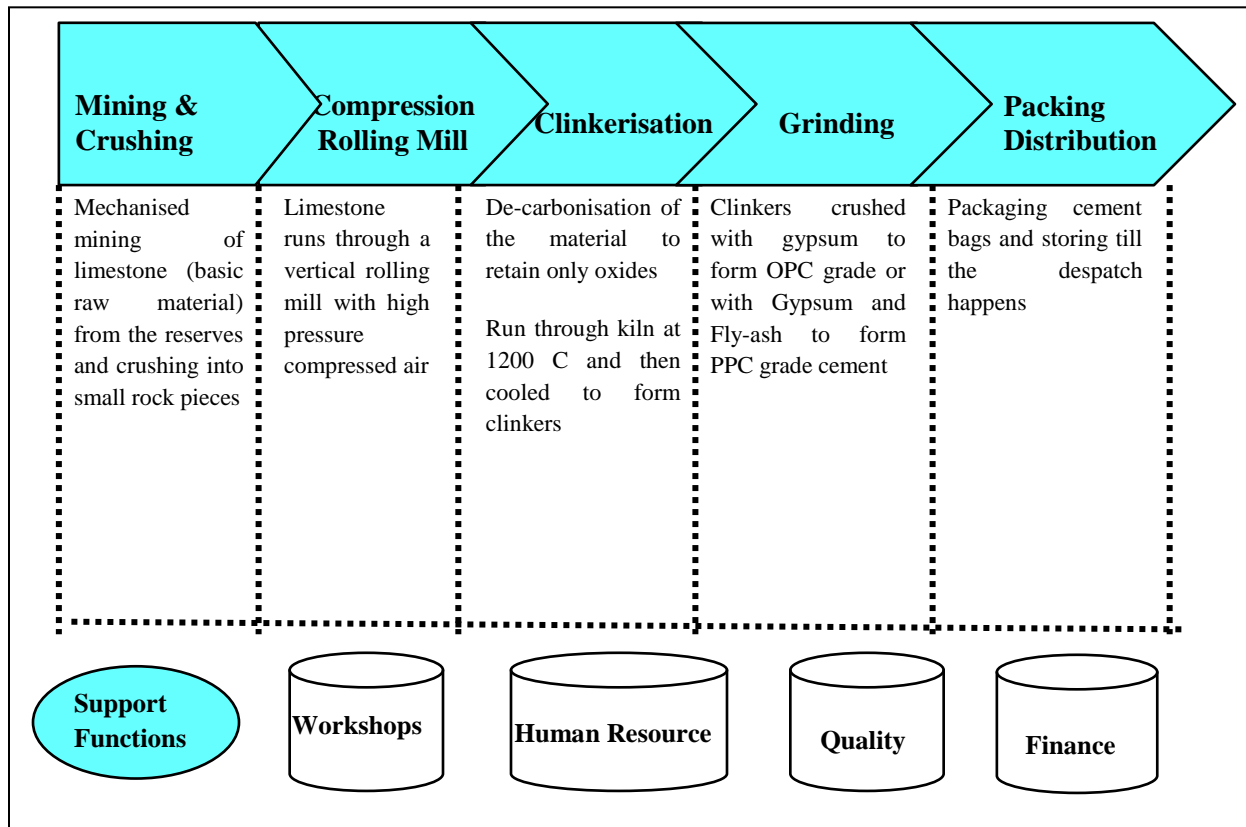


Source: Primary Discussion with Companies

**Value Chain**

Typical activities carried out as part of the cement industry are mining, crushing, vertical rolling mill, calcinations, kiln, cooler, grinding, packing & labelling. Typical activities carried out as part of the industry in the state are discussed in Figure 41.

**Figure 47 Value Chain in Cement Industry**



### *Profile of Workforce*

IMaCS has analysed the respective roles and responsibilities of different level of people in the cement industry value chain as shown in Table 33.

**Table 39 Profile of workforce in Cement Industry**

<b>Level</b>	<b>Qualification</b>	<b>Key function</b>
Level 1 – Helpers	Minimum 8th pass for casual labourer	Handling and moving of raw material and finished product from and to stores  Machine and truck cleaners
Level 2 – Operators	ITI students - Machinists, welders, drillers, fitters, blasters, heavy equipment operators, mason  12th pass with experience in production operations	Operating crushers, cranes and heavy mining machineries  Maintenance of equipments, blast furnace and cooling units  Stores supervision and despatch
Level 3 – Process Supervisors	8-10 year experience as operator  B Sc Chemistry, Diploma / B Tech Chemical or other branches  Graduates – B Com, B A	Supervising and mentoring operators  Quality Assurance and R&D  HR & Administration, Accounts Executives
Level 4 – Production Line / Function In charge	Diploma Engineer with experience  B Tech, MBA	Responsible for production targets for batch  Responsible for Administration and timely MIS to Management

### *Skill Requirements and Skill Gaps Observed*

#### **Level 1 - Helpers**

- **Functional skills:**

- Ability to read and write.
- Strict adherence to quality standards
- Ability to execute as per directions
  
- **Soft skills:**
  - Sound comprehension and concentration
  - Personal Hygiene
  - Punctual
  
- **Skill Gaps:**
  - Lack discipline at workplace and non-serious about job

### **Level 2 - Operators**

- **Functional skills:**
  - Multi-skilling in terms of ability to handle different machines
  - Strict adherence to quality standards
  - Problem solving aptitude
  - Adherence to Standard Operating Manuals for safety
  
- **Soft skills:**
  - Sound comprehension and concentration
  - Willingness to work in dusty condition
  - Sensitive towards workers and junior staff with a consideration to mentor them
  
- **Skill Gaps:**
  - Lack exposure to machines
  - Lack multi disciplined skills such as welding and fitting, auto electronics
  - Limited exposure of ITI students to CNC technology

### **Level 3 - Supervisors**

- **Functional skills:**
  - Willingness to mentor
  - Knowledge about latest quality processes
  - Streamlining of operations and implementation of schedules
  - Ensuring strict compliance to quality parameters
  
- **Soft skills:**

- Communication Skills
- Negotiation abilities for liasoning with various government agencies
- Team worker
  
- ***Skill Gaps:***
  - Lack exposure to production techniques
  - Limited experience in cement industry and no cement technology courses in Polytechnics and engineering colleges

#### **Level 4 - Managers**

- ***Functional skills:***
  - Knowledge about latest product, processes and technology in the cement production
  - Devising of quality standards
  - Leading new product development initiatives
  - Undertaking and implementing cost reduction and environment friendly processes for waste reduction
  
- ***Soft skills:***
  - Initiative to update knowledge about latest technology
  - Leadership abilities
  - People Management Skills
  
- ***Skill Gaps:***
  - Not aware about latest happenings in cement production
  - Limited exposure to managerial courses such as communication, organization management

#### **Finance and Administration**

- Key responsibilities include
  - MIS reporting, budgeting and liasoning with suppliers.
  
- Skills required are
  - Co-ordination with other functions
  - Ability to adhere to timelines for MIS reports
  - Understanding of IT application and accounting software

#### **Quality**



- Key responsibilities of the function involve:
  - Implementation of Quality Plans as per documented procedures due to quality certifications
  - Inspect raw material, conduct vendor quality rating and give feedback to purchase
- Required Skills include:
  - Knowledge of various quality tests, parameters and properties of raw materials
  - Knowledge of various quality certifications such as QS9000
  - Networking with all departments involved in production - raw material procurement, production, packaging etc

### **Human Resource**

- Key responsibilities include
  - Payroll accounting
  - Defining and developing HR processes and policies
  - Conducting training and development program for employees
- Skills required include
  - Compensation and Benefits management
  - Understanding of business requirements to ensure availability of requisite manpower through HO

### **Workshops**

- Key responsibilities include
  - Repair and Maintenance of equipments, trucks fleets, civil structures
  - Conducting training and development program for maintenance staff
- Skills required include
  - Technical skills about functional knowledge of heavy equipments and furnaces
  - Discipline to adhere to standard operating procedures and ensure that equipments are functioning at all times

## 5.2.8. Hydro Power

### *Introduction*

The demand of power in India is enormous and is growing steadily. Electricity is considered key driver for targeted 8 to 10% economic growth of India. Electricity supply at globally competitive rates would also make economic activity in the country competitive in the globalized environment. India has adopted a blend of thermal, hydel and nuclear sources. The vast Indian power market offers one of the highest growth opportunities for private developers. The recent guidelines by the government on private sector participation in hydro power projects have given a push to the sector. The growth in the sector is expected to be driven by several factors such as:

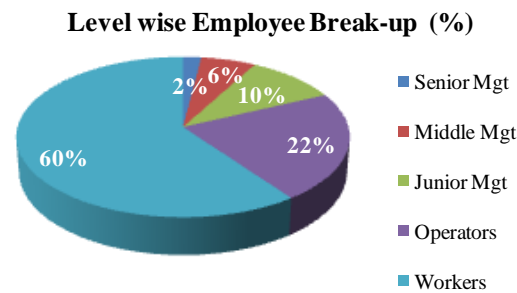
- Inadequate power generation capacity and lack of optimum utilisation of the existing generation capacity
- Rising concern about cleaner fuels for electricity generation in the wake of concerns over global warming
- Greater thrust on involvement of private sector in large infrastructure projects due to limited expertise with the public enterprises in managing such projects
- Vast availability of hydro resources which have not yet been harnessed

### *Human Resource*

Himachal Pradesh has immense hydro-potential in its five river basins of Chenab, Rabi, Beas, Satluj and Yamuna which emanates from the western Himalayas. These basins are primarily concentrated in the districts of Bilaspur, Kinnaur, Chamba, and Kullu. The total identified potential in the State stands at 21000 M.W which is one fourth of India's total hydro-power potential. A large number of projects are under execution and most of the contractors face problem in recruiting worker and operator level people for project construction purposes. However, level wise employee break up in hydro power industry in Himachal Pradesh is as shown below.



**Figure 48 Human Resource Break-up in Hydro Power Industry**

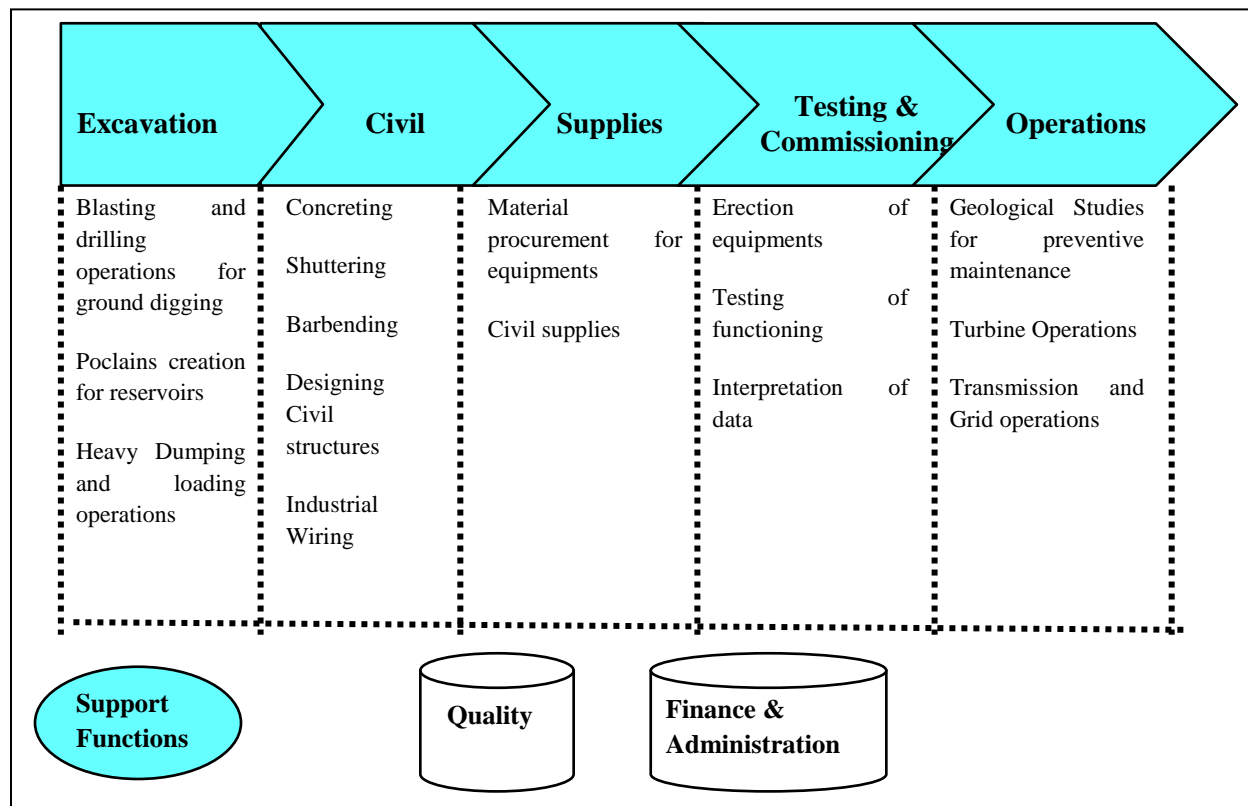


Source: Primary Discussion with Companies

**Value Chain**

Typical activities carried out as part of the hydro power industry are excavation (underground and over ground), civil works (concreting and designing), testing and commissioning, and regular operations. Typical activities carried out as part of the industry in the state are discussed in Figure 43.

**Figure 49 Value Chain in Hydro Power Industry**



**Profile of Workforce**

IMaCS has analysed the respective roles and responsibilities of different level of people in the hydro power value chain as shown in Table 34.

**Table 40 Profile of workforce in Hydro Power Industry**

Level	Qualification	Key function
Level 1 – Helpers	Minimum 8th pass for casual labourer	Loading and Unloading Ground digging and filling Concreting and Pavement
Level 2 – Operators	ITI certificate holders - Machinists, Welders, Drillers, Fitters, Blasters, Heavy equipment operators, Mason.  12 <sup>th</sup> pass with experience in construction sites	Operating crushers, cranes, and heavy earth moving equipments such as dumpers and excavators  Transit Mixers, Carpenters, Bar-bending and Shuttering  Stores supervision and despatch
Level 3 – Supervisors	Diploma / B Tech in Instrumentation, Electrical, Mechanical, Civil  Bachelors / Masters Degree in Geology	Supervising and mentoring operators  Designing of reservoirs and dams  Batching and Chilling Plant Operators
Level 4 – Plant In charge	Diploma Engineer / B Tech in Civil, Electricals and Instrumentation with experience	Responsible for plant operations and maintenance  Closely involved during construction phase to understand the intricacies of the production operation

***Skill Requirements and Skill Gaps Observed***

**Level 1 - Helpers**

- ***Functional skills:***

- Ability to read and write.
- Ability to execute as per directions
- Understanding of basic equipments and tools
  
- **Soft skills:**
  - Sound comprehension and concentration
  - Punctual
  
- **Skill Gaps:**
  - Lack discipline at workplace and non-serious about job
  - Lack exposure to basic equipments and their usage

### **Level 2 - Operators**

- **Functional skills:**
  - Multi-skilling in terms of ability to handle different machines
  - Operating knowledge of heavy earth moving equipments such as drillers, dumper, blasters, excavators, mechanized loaders, cranes
  - Designing and development of basic civil structures and knowledge about shuttering, bar-bending, concrete mixing processes
  - Problem solving aptitude
  - Adherence to Standard Operating Manuals for safety
  
- **Soft skills:**
  - Sound comprehension and concentration
  - Willingness to work in dusty condition
  - Sensitive towards workers with a consideration to mentor them
  
- **Skill Gaps:**
  - Lack exposure to machines
  - Lack multi disciplined skills such as welding (CNC technology) and fitting, dumper and excavators
  - Lack of availability of people with knowledge about civil processes

### **Level 3 - Supervisors**

- **Functional skills:**
  - Willingness to mentor
  - Knowledge about latest technology advancement and equipments usage

- Knowledge about Batching Plant, Chilling Plant and Turbine Operations
- Understanding of civil designs and structures of reservoirs, dams, and other associated infrastructure
- **Soft skills:**
  - Ability to communicate the work requirements to operators to get the work done out of them
  - Team worker
- **Skill Gaps:**
  - Lack exposure to turbine operations and civil structures
  - Limited experience in various equipments, erection processes and geology to identify silting problem based on data interpretation

#### **Level 4 – Plant In-charge**

- **Functional skills:**
  - Cross discipline knowledge in excavation, civil structures and plant operations
  - Supervising the progress of work and ensuring adherence to environmental and safety norms
  - Knowledge of working of remote controlled computerized machines for plant operations
- **Soft skills:**
  - Liasoning with various contractors, sub-contractors and equipment suppliers
  - Leadership abilities
  - People Management Skills
- **Skill Gaps:**
  - This position is not likely to be staffed locally

## 6. Models of Skills Development

The skills development models that evolved in various countries can be broadly grouped under three categories namely;

- Anglo-Saxon Model ( Australia, UK, USA, Canada)
- Asian Tigers Model ( South Korea, Singapore, Taiwan)
- Germanic Model ( Germany, Switzerland, Austria, Denmark)

### 6.1. Anglo-Saxon Model

In this model, formations of skills are largely determined by market mechanisms whereby supply of skills is determined by the demand for those skills. If there is a demand for a certain skill, companies will pay a premium to obtain persons with these skills. Hence, there would be a large number of people who would learn these skills until the premium is normalized by supply.

This model is applicable to economies where the process of industrialization has been in operation for an extended period of time and a well developed and efficient labour market is present.

Employers have significant autonomy with regard to introduction of new skills formation practices such as teamwork, and performance based pay. Trade Unions have a certain influence on the level of managerial discretion of introduction of these practices. Training is voluntary. The government, hence, has little scope for action. It intervenes only in the case of market failures such as unemployment. The government also encourages employers and individuals to voluntarily enhance skills development programmes.

The major challenges associated with this model are:-

- There is a delay between a point of excess supply and demand and the subsequent equalization between both. There is a tendency for skills shortages occurring at business cycle peaks. This creates a bottleneck in the labour market and the problem is magnified when there is limited access to education in that country or the market does not perform optimally for whatever reason. In times of excess supply of skills there is unemployment or underemployment.
- There may be no incentive for the development of specific soft skills like planning, development of numerical and communication skills.

- Financial markets generate pressure on companies to maximize immediate returns and this leads to companies dismantling costly training programmes in the short term for the sake of profits.

Most of these countries, however, have successfully overcome the above mentioned challenges. This involves a greater participatory role of the government which logically has a case to provide for the welfare requirements of society. Therefore in the countries which followed the Anglo-Saxon model of development we now see the government playing a very active role in terms of providing large scale skill growth programmes. Following this, it is possible to observe a more structured, equitable and sustained skills development.

## **6.2. Asian Tiger Model**

This model is the opposite dimension of the Anglo-Saxon model. There is consequently a very high level of government involvement in matching supply and demand for skills in the economy. The government uses policy level initiatives to facilitate the same.

This model finds relevance in countries needing to industrialize in a short period of time as it supplements market operation. This has resulted in the faster transition of these countries from being low skill economies to high skill, high value added economies.

Singapore, for example, took advantage initially of its low labour cost. It applied a strategy wherein government policy was used to make the economy attractive to MNCs which needed lower value skills. As full employment was nearly reached and labour costs began rising, the government had two options: namely, to control cost of labour or move labour to higher value added activity. Eventually, the government started discouraging the use of low cost labour by imposing a levy on companies using low cost labour and using this money to fund other training initiatives.

Countries using this model of skills development have certain features:-

- Control of education is centralized
- There is a steady growth in government expenditure on education
- There is academic streaming i.e. placing students in programs appropriate to their aptitudes, interests and post-secondary destinations
- Rapid movement from labour intensive manufacturing (vocational secondary schools) to higher value activity ( Technical/ Technological higher learning centres)

- Limited entrance to academic institutions, thereby enabling government to generate skills in areas where they are needed
- Encouraging companies to train employees by means of subsidizing skill development programmes and consulting activities for the same purpose

In addition to this, the governments establish independent ministries which ensure that specific demands of the industries are understood and the number of people leaving the educational system at each level and types of skill acquired is tracked.

This concept of government intelligence is expanded in certain cases. An example of the same is the 'Economic Development Board' of Singapore that has outposts throughout the world whose purpose is to identify changing trends in skills technology and organizational practices required to compete in chosen clusters and feed the information into their system. Government administration however, has to be very efficient to maximize this strategy.

To augment and multiply successes achieved, it is possible to observe the initiative of these governments to involve all stakeholders in almost all aspects of the skills development system. In return there is an enthusiastic response from the private sector which is actively and genuinely engaged in taking skills development programmes forward, through measures both self-initiated and in partnership with the government. Hence we see integrated, expanded programmes, without the duplication of efforts, taken up by whosoever has the advantage to do so.

### **6.3. Germanic Model**

This model finds its place between the Anglo-Saxon model and the Asian-Tiger model. The market drives skill development to an extent but there is extensive legal framework for industrial relations and training in place, to limit management discretion regarding the direction that skills formation programmes may take.

The companies find involvement in terms of company finance which is derived from cross holdings and banks placing pressure on the companies to secure long term survival and growth of the organization. The industrial relations institutions are involved in discussions with employers on issues such as staff reductions and ensuring a need for employers to take a long term view on business.

All stakeholders are represented in business decisions. Managers have less freedom to maximize short term profits at the expense of human development activities. The legislative framework creates a trust between workers and their managers. There is a culture of trust between employers and employees and a

long term orientation in companies. Hence these companies are more likely to invest in workforce development.

A salient feature of this model is the apprenticeship scheme where the employers and unions are bound together to enhance it. There is a relevance to industry while cost is shared. It ensures a high level of skill formation. Singapore and many other countries have adopted variations of the German apprenticeship scheme.

The challenge encountered by countries adhering to this model is that it is not flexible as all stakeholders need to come to a consensus on all issues.

However, this model of skills development is pioneering in many ways, especially through its public private partnership programmes, as it continues to inspire skill development initiatives around the world. It is an example of responsible participation of the various stakeholders in the well orchestrated and cohesive skill development system.

We shall now elaborate the broad profile of skill development initiatives in various countries.

## **6.4. Key international skill development initiatives**

### **6.4.1. Skills Development in Australia**

Several national level initiatives have been taken by the government of Australia to augment the private enterprise led initiatives.

#### **School to Work Programme**

This centralised programme serves to facilitate easy transition from school to further education, training and employment through providing funds for vocational education in schools. Strategic projects under the Enterprise Education (EE) initiative include identifying best practice models for piloting projects like part-time New Apprenticeships (customised to suit different ages) in schools; developing VET delivery to suit rural and remote areas, development of varied partnership models for VET in schools.

A study of this initiative, found that the EE initiative made useful advances in achieving its key objectives. Overall 68% of schools surveyed reported EE activity. According to most principals surveyed the EE would be given emphasis in schools in the future. EE funded initiatives helped students to achieve



higher levels of motivation and awareness of job and work opportunities. These initiatives have increased students' knowledge of business and enhanced links between schools, businesses and communities.

### **Industry Postings**

This programme has been initiated by the Office for the Commissioner for Public Employment to give the public sector access to key areas of expertise in the private sector and increase understanding of Government amongst the private sector. Industry Postings are open to all levels of public sector staff. Industry Postings are bi-directional, i.e. private sector employees may be posted in the public sector and vice versa. Either organisation may initiate this. The parameters governing Industry Postings may vary from one business to another and are negotiated on a case by case basis.

Arranging an Industry Posting requires the involvement of many stakeholders. This initiative requires the full commitment of Office, the Chief Executive of the private company and the respective Minister of the public sector to support high performing employees' participation. Human Resource staff in each agency is responsible for guiding the process. This process involves identifying and approaching private sector businesses, negotiating employment contracts and determining funding arrangements. An Industry Posting requires identification of such issues as non-solicitation, intellectual property rights, confidential information and conflicts of interest.

An identified high performing employee can benefit from the experience in a private sector organisation. Industry Postings are useful for public sector organisations as they can expect to gain any or all of the following benefits through participation:

- A better understanding of how a particular industry group operates e.g. the Banking Industry
- Insight into a particular business
- Forging relationships and contacts with individuals and businesses
- Increased awareness of the business systems of the other sector including knowledge of the operational, technological, financial, social and environmental climate

### **Return to Work Programme**

To assist job seekers returning to the workforce, this initiative was designed to help in finding job opportunities. The programme was available to job seekers not benefiting from other similar assistance,



regardless of income support status. Job seekers on income support are required to be registered with the government as unemployed. The objectives of this purely voluntary service programme were to increase the skills and improve the self-esteem, motivation, confidence and career planning of job seekers who wished to re-enter the labour force after an absence of two or more years.

The programme was designed to be preparatory in nature rather than focused on employment outcomes. The Return to Work services was delivered to job seekers for the Department of Employment by contracted Managing Agents in each State and Territory. The government provided information about the Managing Agents and the programme to the job seekers. The participants then approached the Managing Agents for their placement in the programme. An individual Return to Work plan was developed during the introductory interview, where services such as referral to other career counselling or training were provided. An exit interview took place when the training was completed. During the contract period March 2000 to March 2002 about 16,000 people were assisted at a cost of Australian \$9.6 million. From 2002-2004 the programme assisted 19,000 careers at a cost of Australian \$12.9 million.

## **6.4.2. Skills Development in United Kingdom**

### **Shell Technology Enterprise Programme (STEP)**

A Shell UK Community Investment Initiative which was started in 1986, STEP soon became a nation-wide programme. The was set up in the UK to make new university graduates aware of the potential of jobs in Small and Medium Scale Enterprises (SME) and entrepreneurship, and to familiarize value of SME as part of university curriculum. In the UK, the STEP programme supports about 1,000 undergraduates per year from universities and polytechnic colleges. It is delivered through a unique partnership of Enterprise Agencies, Universities and other business support organisations. Shell UK continues to support and fund STEP and the programme receives financial and other support from a number of Government Departments and Agencies.

Shell places students in their pre-final year in SMEs to work on specific projects lasting about 8-12 weeks. These placements are worked out beforehand with the SMEs to ensure that projects are matched to the students' abilities and can be completed on time. The trainees are paired with Shell experts in the Netherlands, who act as sounding boards for the students, and the university provides any support needed. When the projects are finished, some SMEs may decide to offer jobs to their trainees when they graduate, or seek out other university graduates.

## **The England Rural Development Programme**

The England Rural Development Programme (ERDP) helps farmers and foresters become more competitive, make their output suited to consumer needs, flexible and environmentally responsible. The ERDP takes a broad view of the needs of rural areas and rural communities and offers an integrated set of schemes to achieve its objectives. It places strong emphasis on addressing regional and local issues and on encouraging and developing ideas at grass roots level through the following initiatives:

- The Vocational Training Scheme targets assistance locally for training activities to facilitate the broadening of the skill base of farmers and foresters.
- The Countryside Stewardship scheme aims to restore and recreate targeted landscapes, wildlife habitats, and to improve opportunities for public access.
- The Environmentally Sensitive Areas (ESA) scheme offers incentives to farmers to adopt agricultural practices which will safeguard and enhance parts of the country.
- The Organic Farming Scheme encourages British farmers to meet the increasing demand for organically produced food.
- The Hill Farm Allowance Scheme contributes to support for continued agricultural land-use, and helping to preserve the farmed upland environment.
- The Woodland Grant Scheme creates employment opportunities for diversification through payments to plant trees.
- The Farm Woodland Premium Scheme supports the creation and development of farm woodlands through annual payments to compensate for agricultural income foregone.
- The Rural Enterprise Scheme offers a range of activities designed to help farmers develop their businesses within the local economy.
- The Processing and Marketing Grant provides capital grants for investment in processing and marketing facilities for English agricultural primary products to encourage innovation and investment to achieve added value and enhanced market opportunities.

### **EiC /EMAG Pilot Project 1**

The DfES (Department for Education and Skills) as part of the Government's commitment to serve the welfare of ethnic minority students, through the joint use of EiC (Excellence in Cities) and EMAG (Ethnic Minority Achievement Grant) funding streams started an innovative pilot project. This national

scheme involves ten Local Education Authorities (LEA, in Birmingham, Camden, Hounslow, Leeds, Lewisham, Manchester, Nottingham, Rochdale, Southwark, Wandsworth) with high concentrations of ethnic minority students. Its purpose is to support the development and implementation of a range of initiatives aimed at bridging the achievement gap.

An annual grant over a three year period is given to the LEAs. The focus of the programme is on transition, monitoring and target setting, parental involvement and analysis of performance data at the school level. These projects not only target specific ethnic minority groups, but also include certain innovative strategies that involve students of ethnic origin in selected schools.

An independent evaluation of the programmes impact on schools was commissioned by the DfES, the findings of which will be used to identify and disseminate models of good practice. The evaluation is being carried out by National Foundation for Educational Research.

### **Upfront Skills Shortage Subsidy**

The Upfront Skills Shortage Subsidy provides a fair incentive for employers to carry out intensive training activities for their employees through financial assistance provided by the Department for Work and Pensions when an employer undertakes a significant amount of upfront training. The training must be towards an approved qualification.

Employers are granted three quarters of their funding at the beginning of an employee's job and the final quarter is paid after 26 weeks, subject to achievement of the objectives set out in their Individual Training Plan. In return an employer offers his employees the opportunity to work for him/her for at least 12 months.

### **University for Industry (Ufi)**

A public-private partnership in England, Wales and Northern Ireland, Ufi created in 1998, aims to put individuals in a better position to explore career prospects and boost business competitiveness. Learndirect is the services provider for this initiative, giving access to innovative and high quality courses, over 80% of them on-line. Learndirect enables people to fit learning into their lives, learning wherever they have access to the internet - at home, at work, or in one of over 1500 Learndirect centres.

Working with businesses, education and training providers, the Ufi promotes learning both basic skills and specialised technological skills and business management. Modern technology is used to make learning available at a time and place to suit the learner – at home, in the workplace and through a national network of learning centres.

The Ufi is estimated to have reached one million learners, including 400,000 private and public sector employees a year in organisations of all sizes till 2005, generating significant and profitable revenue from commercial engagement with large employers.

A survey of Learndirect learners conducted revealed that:

- 90% said that they had either already recommended Learndirect to others, or would do so
- 60% had done no learning in the previous three years
- 24% said they would not have undertaken any learning if Learndirect had not existed.

It is therefore evident that the learning model upon which Learndirect is based is working well.

### **6.4.3. Skills Development in United Kingdom - Scotland**

#### **Glasgow 50+ Job Retention**

Glasgow 50+ Job Retention supports small businesses to expand and develop by improving employee retention through an incentive of excellent training offered to workers. Most people appreciate the need to continually acquire knowledge to ensure their future employability. This programme provides an opportunity for employees and potential workers to access learning and training thereby increasing their skills, confidence and enhancing future employment potential.

Companies access substantial vocational training for existing employees by recruiting an additional worker as a Glasgow 50+ Job Retention Trainee. This includes providing vocational training for selected staff, supplying and training previously unemployed people as workers to substitute for the staff released for training (upto four or more existing staff) hence guaranteeing a job to an unemployed individual with a wage for six months. The training can be college-based vocational training or specialised vocational training, such as customer care or retail practice, or personal development courses or mentoring. The scheme also offers companies free training assessments and helps in the development of a training plan. It

uses the proven Job Rotation model, which is a very cost-effective method of supporting enterprise and economic development by improving the employability of workers and the unemployed. In Europe several countries have already legislated to enable job rotation to be included in their national labour market policies.

### **Western Isles - Bringing jobs to a skilled workforce in a remote area of Scotland**

The Western Isles suffer from problems associated with remote, rural areas: depopulation, high transport costs, lack of employment opportunities and a narrow economic base. The decline in population has been caused partly by the loss of many jobs in the traditional industries, and partly by lack of employment opportunities for young people, who leave to go to university in mainland Scotland and after graduating have few opportunities to return. However, the workforce of the islands is highly qualified. The Western Isles have the highest number of graduates per capita in the UK, a secondary school achievement record of double the national average and a very intensive training investment programme. This initiative was started in 1994, the objective being to put the highly qualified workforce of the islands in touch with potential employers and clients through teleworking and call centre activities, thereby creating jobs and allowing the inhabitants of the Western Isles to live locally while working globally. The main beneficiaries are residents of the Western Isles with a higher education who work from home as teleworkers or in call centres.

The Islands have an excellent communications infrastructure since customers can be based all over the world and the creation of jobs depends on the use of advanced, telecommunications equipment. Where needed, special solutions have been implemented (such as call centres which use “seamless” electronic switching). The teleworking initiative is organised in a partnership, WI-ICTAS (Western Isles Information & Communications Technology Advisory Service). WI-ICTAS runs a facilitation service, ‘Work-Global’, which seeks out worldwide teleworking opportunities and attracts inward investment.

The matching of the workforce skills to the needs of clients both nationally and internationally is conducted by WI-ICTAS facilitation service through pro-active marketing programmes. There is no charge for this facilitation service. The only costs required typically are for worker hours contracted and any specialist software or support services that might be required. Apart from creating jobs for well-educated islanders, who were unable to find work matching their skills, the initiative has also enabled people living outside, who wished to return, to do so.

#### **6.4.4. Skills Development in Brazil**

##### **Programme to Train Rural Entrepreneurs by means of Incubators - The experience of the SENAR at Bahia**

The attempts to create small and medium sized enterprises in the tertiary and secondary sectors failed often. The need to devise mechanisms which offered rural entrepreneurs necessary knowledge and experience to prevail in their undertakings was felt. Thus was conceptualized the idea of firms' incubators, consisting of an adequate physical infrastructure and equipment, which provided candidates with real-life business experience. This programme initiated in rural areas has far-reaching effects, promoting overall modernisation of primary production, industrialisation and marketing, with a permanent impact on the development of rural areas. It is an educational process that is adapted to each regional situation, and its agricultural inclinations or aptitudes.

Persons who meet the requirements of the incubator proposal register with SENAR. Participants have to be rural producers or workers; processors, middlemen or dealers in commodities or other products of the agricultural sector. Selected candidates go through the occupational module that gives them further training until they can perform tasks to full satisfaction. This constitutes the SENAR directive of "Learning by doing". Successful candidates go into the subsequent module where they are taught the know-how and techniques to carry out an economic analysis of their business.

If these projects are found to be viable, participants willing, they enter a third stage dealing with marketing and management techniques. In this manner, after production methods have been refined, economic viability verified, market goals identified and management styles outlined the final project is prepared and implemented with direct participation of the entrepreneurs themselves. The total training load of at least 228 hours must be delivered in a year's time.

In the programme, each phase can be thought of as a result, as participants are certified if they are successful. Certification improves chances in the labour market as it bears witness to abilities. Each Incubator is established as a non profit Civil Society, run by a Managing Committee made up by representatives of the institutions directly involved, which is responsible for selection of candidates entering each level and acts as a guarantee of funding support. Participants are always encouraged to associate with each other making them aware of the importance of scale economies.

This programme has shown that there are varied opportunities for self-managed small and middle-sized agricultural enterprises in the area of Bahía. Many results provide evidence of the added economic value to rural raw materials. Examples being the manufacture of preserves, pickled vegetables, jam, sausages and dairy products that add 10 to 12 times the value of original commodities. Products are placed in principle in the local market. 71% of total funds applied under this programme have been in the primarily rural States of Sao Paulo, Rio de Janeiro, Rio Grande do Sul and Santa Catarina.

### **Basic Skills Certification Programme in Minas Gerais**

This project has evolved its focus since inception to develop a broader skills standards certification system and not restrict itself to create only a basic skills certification. The basic skills project was to discover and establish a testing instrument to identify the basic skills of the workforce. Under this programme an instrument was created that profiled the basic skill levels of workers for the state of Minas Gerais.

The executing agency, Federation of Industries for the State of Minas Gerais (FIEMG) in combination with national efforts of the training institute for the industrial sector (SENAI) worked toward a skills standards certification programme. The standards certification project involved two pilots for construction and electrical maintenance, amongst others. The project specifically aimed to be demand-driven and worked only with those sectors with a clear interest and demand for certification.

In the state of Minas Gerais, the average educational level of the workforce is even below the national average of 4 years. The projects emphasis on basic skills and the focus on skills standards certification were to address the need for a more productive workforce for a population with very low educational levels. The rationale for skills standards within SENAI is based on an interest in improving the services offered to the private sector in human resources development.

The projects results include an inventory of the skill level of the workforce in the state, which served to document and validate the need for basic skills training. A database of about 1,400 multiple choice questions related to basic skills was also produced and could be adopted in the standards certification process. Thus far, the project has developed five standards and corresponding curriculum for the construction and electricity maintenance sectors. The pilot experience in Minas Gerais, together with pilots led by SENAI in other states has resulted in the development of a methodology for standards development and certification that will be used by the SENAI system nationwide. The SENAI is planning



on utilizing the existing regulatory system for the ISO 9000 certification process. SENAI will present an application to the accrediting body for ISO, the National Institute on Methodology (INMETRO) to become accredited as a certification organization that certifies workers.

### **The "Comunidade Solidária" (Solidary Community) Initiative - Brazil**

The Comunidade Solidaria council is primarily concerned with social development. It develops and experiments with different forms of collaborations between public and private actors in the fight against poverty and social exclusion. Thus, it functions as a facilitator and catalyzes initiatives implemented by various actors. Successful initiatives after being adequately assessed are carried out on a greater scale. In this way, the council has been responsible for a number of initiatives in the last two years, aimed at integrating urban poor youth to the labour market; reducing illiteracy among 15 to 17 year olds in the poorer parts of the country; strengthening of civil society by the creation of an interactive information network on the third sector (non-governmental and non-profit) to support the establishment of Reference Points for the training of voluntary workers, and the review and updation of legislation concerning relations between Government and civil society.

Social problems are a major concern in Brazil and this makes it necessary to increase the projects and policies directed to finding solutions. The initiatives of "Comunidade Solidária" involve voluntary and spontaneous participation of social actors. To achieve this, the council initiates dialogue between the Government and representatives of different sectors of society to define minimum agenda. The following points find prominence; employment and income, food security, children and youth and rural development. By means of this political dialogue, actions are carried out involving regular co-ordination among Ministries, members of society, governmental officials and experts, Unions, employers' associations, media, NGO's and intellectuals. This is done within sectoral committees set up by the council of "Comunidade Solidária".

The projects conceived and promoted by the council focus on young people who have no access to education and jobs, in an effort to provide this group with new opportunities of social insertion. They are: Solidary Literacy, Solidary Qualification and Solidary University.

1. Solidary Literacy programme was conceived to assist young people between the ages of 12 and 18 who were illiterate and also lived in the municipalities with the highest illiteracy rates in the country. It was the result of a partnership among the Solidary Community, the Minister of

Education, Brazilian universities, city halls and representatives of private initiative. The pilot project was implemented during the first semester of 1997 in 38 municipalities of the Northern and North-eastern regions, where illiteracy rates exceed 55%. Eleven companies have taken responsibility over the selected municipalities; 38 universities have been trained and have trained young instructors selected in their own communities and begun to follow up, on a regular basis, the development of the pilot project in their respective towns. Plans for the future include the expansion of partnerships, so that this model can be extended to all regions in the country with high illiteracy rates.

2. Solidary Qualification provides young people between the ages of 14 and 21, from low income households of metropolitan regions, access to professional training and the labour market. The courses are conceived and delivered by organizations of the civil society that work within these needy communities, with resources granted by private initiative. Project selection and students qualification is done through public entrance examinations, and the selection is under the responsibility of a committee of renowned experts. The main criterion is the innovative nature of the courses proposed. This new process aims at making access to resources more democratic, by giving equal opportunities to both small and large non-profit organizations. The qualification course is six months long and its format associates the teaching of an occupational activity with the development of sociability and self-esteem. During its pilot phase, in 1996, the Solidary Qualification programme provided for the delivery of 33 courses in São Paulo and Rio de Janeiro, having trained a total of 10,500 youngsters.
  
3. The Solidary University programme was developed with a view to take advantage of the volunteer work carried out by both university students and universities towards the improvement of living standards in the neediest segments of society. The programme allows for students from several regions in the country to visit small municipalities in the hinterlands of the North and the Northeast during their summer vacations, where they participate in activities of community mobilization, aimed at improving local health assistance, education and organization. The initial format of the programme is based on sending teams of ten students per municipality, accompanied by a professor. The work is developed through videos specially developed for this purpose. University students show the videos to the people clear their doubts and promote participation through group activities, simulations, plays and discussions. It is the result of a partnership among companies, universities, city halls, the Armed Forces, ministries and foundations.

**Distance Education Programme (PEAD)**

The Distance Education Programme (PEAD) of the National Training Service attached to the National Transport Federation of Brazil was started with the intention of providing productive training to road transport workers. The programme includes 50 courses monitored by facilitators specially trained in the transport companies themselves.

The SENAT Distance Education Programmes are broadcast daily by television on the "Transportation Network". There are TV sets receiving the transmission at more than 1,500 companies, unions, federations and associations, as well as at the Professional Assistance Centres (CAPIT) and Transport Workers' Service Posts (PATE) located by the side of highways in the different Brazilian States. However, the courses can also be obtained on videotape to be played in classrooms, and the teaching aids on computer diskettes.

Subjects taught include: economic driving techniques, bar code, development of managing skills, financing, renewal and management in road transport, and bus conductor. These training activities are being certified as a guarantee that workers have undergone adequate learning process, and profited from the courses' discussions, exercises and tests. The TV network is also used to impart elementary education contents of grades 1 and 2. This is done through a well-known programme, "Telecourse 2000" that has been validated by the Education Authorities of the different States.

**Technological Incubators of the National Industrial Training Service**

The National Industrial Training Service (SENAI), in Brazil in addition to fulfilling its role as a vocational education institution is getting to be acknowledged, as an instrument for the generation and dissemination of technology. The incubator projects conceived by SENAI are considered means to accelerate modernisation. Assistance is rendered to create new firms and to help create structures quickly for firms that find it difficult to get attuned to technology. The basic proposal is to facilitate the difficult transition from the laboratory prototype to an actual industrial run. Thus there is a need for a strengthened infrastructure and activities associated with the support provided by research, marketing and training.

An incubator makes available to emerging firms physical space, support services - telephone, fax, graphic reproduction, secretarial services, administration, accounting support, computer support - human resources, specialised services, training, technological support, etc. The mechanisms of support developed

by the SENAI serve to provide a basis and training for employers so that they may be able to face with certainty the obstacles which arise between the world of research and entrepreneurial reality, where competition -quality, productivity and price- determine success.

## **6.4.5. Skills Development in Singapore**

### **Institute of Technical Education**

The Government of Singapore through the Institute of Technical Education (ITE) system has integrated its skill development program with the education system of Singapore. The Mission of ITE is “To create opportunities for school leavers and adult learners to acquire skills, knowledge and values for lifelong learning in the global economy”.

The ITE System has three colleges. The ITE East, ITE West and ITE Central. The complete vocational training for Singapore is done in these colleges. They cater to about 25% of the student population. ITE system is accredited in the worldwide and finds wide acceptance in most developed countries. The government of Singapore realizes the importance of skilling the bottom 30 % of the population and invests nearly 1.5 % of its GDP in this area. It also understands the importance

*The ITE system creates opportunities for school leavers and adult learners to acquire skills, knowledge and values for lifelong learning in a global economy. ITE also functions as a post –secondary institution.*

One of the most important models that ITE uses is the win – win partnerships of Joint certification with the Industry Leaders. ITE has signed about 61 Memorandum of Understanding (MoUs) with leading player from a wide range of Industries. These Link ups, including a total of 13 sponsorships for Training equipment and faculty. This leads to Joint certification and student internships. Some of the important ones are:-

- Sun Microsystems.
- Microsoft.
- METI Centre for Healthcare Simulation Training.
- ABB Automation Technology solutions.
- Omron Application Solution Centre.
- IBM

- Retail Industry leaders
- Leading Beauty Therapy leaders.
- Building security control and air-conditioning systems.
- Smart Homes.

In addition, the ITE has a specialized ITE Education Services arm. This arm was created in response to numerous requests from companies both local and overseas to ITE for providing training and consultancy services. Based on the requirement ITE incorporated a holding company, ITE Holding Pte Ltd on 13 Jan 2003 and a subsidiary under the holding company ITE Education Services Pte Ltd (ITEES) on 20 Jan 2003. This is the business arm of ITE. It is a good business model where there are a number of leading private Industry leaders on the board and they provide management guidance and approve policies of ITEES.

The Mission of ITEES is – To extend the brand name of ITE by capitalizing on its knowledge and expertise in vocational Technical Education and Training.

### **Certified On-the-Job Training Centre (COJTC) Scheme**

A number of companies of various types and belonging to various sectors in Singapore have benefited from Institute of Technical Education's (ITE) Certified On-the-Job Training Centre (COJTC) Scheme. The Scheme, through the structuring of companies' On-the-Job Training (OJT) and promoting of skill upgrading among employees benefits them. This Scheme, implemented in April 1994, helped companies maximise the potential of their employees and motivate them to firm up skill levels by recognising OJT certificates for entry into relevant Skills Certificate courses. ITE's COJTC scheme has evolved to better accommodate the training needs of companies.

### **Critical Infocomm Technology Resource Programme (CITREP)**

Critical Infocomm Technology Resource Programme (CITREP) is a training incentive programme by IDA (Infocomm Development Authority of Singapore), started to accelerate the development of specialised infocomm skills needed by the infocomm industry and its user organisations. Funding support under CITREP is open to Singapore-registered organisations that sponsor their employees for training in

the endorsed courses, and to self-sponsored individuals. CITREP supports up to 70% of the course and examination fees for endorsed training courses.

Microsoft (Singapore) works with different departments of the Singapore Government to create technological solutions develop IT policy and address issues of mutual concern. This includes investing in the Singaporean economy, education system and IT industry, plus a commitment to local research and development. Courses are provided by Microsoft Certified Trainers at Microsoft Certified Technical Education Centres (Microsoft CTECs).

### **People for Jobs Traineeship Programme (PJTP)**

PJTP offers employers wage support incentive in return for providing traineeship/mentorship arrangements to help newly recruited workers making a career transition with no relevant experience in a particular sector to fit into new jobs and work environment in it. PJTP encourages employers provide suitable job opportunities for such local workers aged 40 years and above. For each unemployed older worker that the participating company hires, the employer receives a wage support of 50% of gross salary or SG\$2,000 per month whichever is lower, for a period of up to 6 months. In addition, for a worker of age 50 years & above, the wage support is extended by another 3 months, at 25% of gross salary or \$1,000, whichever is lower.

The companies that participate in these initiatives claim wage support for qualified workers employed through the referrals of the Singapore Workforce Development Agency (WDA) or its associates (Community Development Councils, Self-Help Groups, the National Trade Union Congress, etc) or through their own direct recruitment.

### **Skills Redevelopment Programme (SRP)**

This is a national funding incentive programme that helps employers enrol their employees for certifiable training. It is required that:

- The courses are SRP-approved.
- The company must be registered or incorporated in Singapore.
- The trainee must either be a Singapore Citizen or Permanent Resident of Singapore.
- The trainee must achieve at least 75% attendance and sit for all prescribed examinations.

### **Skills Training and Employability Enhancement for Retrenched and unemployed workers (STEER) Programme**

This programme is an extension of the Skills Redevelopment Programme (SRP) for retrenched and unemployed workers that takes SRP one step further by linking full-time SRP training to job placement. The current list of STEER programmes which serve to place and train candidates includes AeRO (aerospace), BusCaptAIN (public bus services), CaRE (call centre), DomestiCaRE (domestic cleaning), HEART (healthcare), PreciSE (precision engineering), PriME (prime movers), PTAP (hotel), SHA-NTUC (hospitality), TESS (social services), TextiLE (textile), WaFER (wafer fabrication).

The trainee must however fulfil certain basic requirements. He must be:

- A Singapore citizen or Permanent Resident of Singapore
- Unemployed
- In possession of at least 75% attendance and must sit for all prescribed examinations
- Benefiting from Course Fees Support
- Trainees 40 years and above.

### **6.4.6. Skills Development in Germany**

VET is regarded as the pillar of the educational system in Germany. Two-thirds of young people undergo vocational training in the dual system. This training would ideally last two to three and a half years, depending on one's occupation. It is described as a "dual system" as training is carried out in two places of learning: at the workplace and in a vocational school. The aim of training in the dual system is to provide a broad-based basic to advanced vocational training and impart the skills and knowledge necessary to practice a skilled occupation within a structured course of training. Those completing the training are entitled to do skilled work in one of about 355 recognized occupations requiring formal training. The only requisite is that the student should have completed full-time schooling before commencing vocational training.

Industry and the civil service sector offer vocational training, in independent professions and in private households. The theoretical knowledge acquired at the Berufsschule (an autonomous place of learning) is combined with work experience and applied in specific situations. It works together on an equal footing with the companies participating in vocational training. Its function is to provide pupils with general and

vocational education, with a special focus on vocational education, adding to the general education they have already received. Pupils attend the Berufsschule on a part-time basis. The aim of the different ways of organising the course is to guarantee the best possible attendance rate of the pupils within the companies.

Training regulations were established to set standards which were uniform throughout the country such that are independent of the companies' current operational needs and meet the requirements in the respective occupation. Training companies and in-company training personnel's qualification is determined by autonomous chambers of the various occupations and branches of industry. They monitor the training to keep a check on quality.

The Federal Employment Service (BA) is a system of career counselling for young people and adults by the employment offices. It is a nationwide service to all persons either participating or wanting to participate in the labour force. The BA has concluded a binding framework agreement with the Standing Conference of the Ministers of Education and Cultural Affairs of the nation (KMK) and agreements at country level with individual Ministries of Education and Cultural Affairs on cooperation between schools and career counselling services in helping to prepare pupils for their career choice. These agreements are constantly updated.

## **National Level Initiatives**

### **National Compact on Vocational Training and young skilled personnel in Germany**

The organisations representing German business and the Federal Government signed a National Pact on Vocational Training and Young Apprentice Development, on 16 June 2004 for three years, which reflected how business takes responsibility for training young people. It is found that voluntary commitment and cooperation of various stakeholders works better than training levies and improves the vocational training situation. The federal compact is accompanied by regional pacts, which makes the initiative more effective. The common goal of the federal government and business organisations is to offer capable and willing young persons a training opportunity. Young people with limited opportunities enter into special pre-training measures in order to be integrated into regular vocational training by signing an apprenticeship contract with a company.

Key measures agreed upon are:



- To recruit an annual average of 30.000 new (in-company) apprenticeship places
- To provide 25,000 traineeship places (for pre-training measures) per year for young people supported by a tax-financed subsidy for disadvantaged young people
- Joint action for late apprenticeship placement by chambers of commerce, chambers of skilled crafts and the local employment agency.
- To increase the number of apprenticeship places by 20 percent in the federal government
- Appeal to the social partners for establishing incentives for vocational training and reducing hindrances in collective agreements.

Employer organisations invest a total of € 100 million in all these initiatives every year – in addition to the € 28 billion that companies invest in the initial vocation training of their apprentices.

#### **Ausbildungs initiative 2004 (Training Initiative 2004):**

Employers' organisations made an announcement regarding commitment to offer maximum apprenticeship positions as possible starting with the year 2004. As part of this initiative organisations, call upon companies to invest in vocational training, to support and organise training cooperation. They also organise advertising campaigns to recruit young people for their apprenticeship places and support schools for a better vocational guidance.

Actions taken at a sectoral level and company level are illustrated below.

### **Metal and electrical industry**

#### **Agentur Q (Agency Q)**

This is a scheme that covers 880,000 employees in the metal, electrical and IT industry - created by social partners who include industry and ancillary industries associations, unions and individual companies in July 2002. The aim of Agentur Q is to advise small and medium-sized enterprises and works councils on the organisation of their vocational training. Agentur Q is intended to help provision of support qualification in companies, to sustain competitiveness and preserve jobs. The following major projects have been commenced:

- project on continuing training in the work process for skilled workers

- project on continuing training concepts and measures for semi-skilled and unskilled workers (e.g. migrants)
- Project on continuing training for 3D designers.

### **Job Navigator**

Job navigator is a guidance service which was designed by Trade union IG Metall for workers who were interested in continuing training but who first of all required a reliable capability analysis of their abilities and inclinations. Since 2003 the Job Navigator is being used as an information and guidance service for individual vocational development. The Job Navigator is suitable for those who wish to know their capabilities and their competency levels. It can be useful for employees wanting to reorient themselves to other jobs or to build on their capabilities. A personal skills handbook is provided which the user can use to catalogue and evaluate his vocational skills. Also available is an individual capability analysis which is drawn up by external experts, a guidance service and a continuing training checklist. In addition, it comprises a wide range of information about work and professions.

### **Project VAH - Virtual Automobile House – a qualification offensive in the automotive sector**

IG Metall is a partner in virtual automobile house (VAH) project. It is a system of education and training in the automotive sector. The project is being run under the responsibility of trade association and trade union from June 2002 until the end of May 2005; it is operated by the Fraunhofer Institute for Computer Graphics (FhIGD) in Darmstadt and has financial support from the German Federal Ministry of Education and Research. VAH allows qualification through the trainee's own actions. These training courses are incorporated in an educationally simplified workshop, commercial and accounting system with interfaces to all relevant automotive information systems on the basis of Internet technology.

## **Chemicals Industry**

### **Project “Ciwes”**

In the chemicals industry, employees in the sector and training service providers are intended to gain support in shaping the training system and thereby Germany's attractiveness as a location for the chemicals industry. Implementation of the new collective agreement is intended to be supported and promoted to that end. Ciwes project includes an analysis of what are the current happenings in terms of

training, identification of current and future training needs in the sector, analysis, training offers and preparation of recommendations. Ciwes was started in 2003 and is implemented in cooperation with the trade union and sector association until the end of 2005. Project partners are technology centres and the service companies.

### **Project “Betriebsräte als Weiterbildungsberater” (Works Councils as Training Advisers)**

The trade union for the chemicals industry has implemented this project. The objective of the project was to promote training in companies through works councils. Normally training practice was seriously lacking in most businesses, especially in SMEs. In this situation, works councils were in a position to render assistance by advocating training initiatives. In addition to numerous workshops, major training projects have already been implemented in seven companies, with duration of five to twelve months. Works council, directors and managers and even employees are involved (via the works council on the basis of discussions and questionnaires) in planning. This joint approach to training involving the four groups has generated great dynamism in the project companies. Through discussions with employees, the council creates the necessary motivation for training and prevents the company from taking poor decisions. Also it establishes a positive climate amongst managers by providing them with central responsibility for planning and implementation of training.

### **Lifelong-Learning Animateurs Project (LLLA) of Trade Union IG BCE**

The trade union has created a framework to facilitate employability of workers on the basis of the collective agreement in the chemicals industry. The project develops a training concept which qualifies colleagues to discuss the theme of training with each other by animating their work environment. This gives support particularly to those who have not so far taken part automatically in training. Alongside the German partners the project includes Finnish, Swedish, Bulgarian and Spanish training and trade union organisations.

## **Construction Industry**

### **Joint declaration of the social partners on training**

An action programme designed by the construction industry trade associations and trade union was agreed upon in their joint declaration on training announced in 2003. Among other things, a permanent working

group on training and a joint training offensive was started in the framework of the sectoral social dialogue. Within this framework, model projects were implemented and a “construction passport” was issued, in which formal qualifications and skills acquired informally were recorded based on the model of the European curriculum vitae. This would facilitate a workers easy movement across the industry given his recognition of prior experience.

### **6.4.7. Conclusion**

In the above sections, we have seen, at a high-level, various skill development initiatives in several countries.

Being one of the world’s fastest growing economies, India has made rapid progress in the last one decade. Although sharp economic growth is projected in the next decade or so, India currently faces shortage of skilled human resources.

To achieve set development agenda and address skill issues, an understanding of international models, policy initiatives, programs and delivery agendas in the arena of skills development is crucial. India needs to absorb from the global experiences, success and failures, to re-invent and strategize its skills delivery. Across the world, economies have fast realized the importance of skills and special focus has been given to education and training at all levels. The millions entering the working age group need to be educated and skilled if they are to fulfill the ever increasing manpower needs within and abroad. They would not be the assets, as envisaged, unless they are given the requisite skills to do productive jobs.

India finds itself in a very unique situation that although there are significant challenges facing us, there are very positive aspects regarding the current state of affairs that could lend itself to an increased global competitiveness.

The options facing us, while at the threshold of achieving global competitiveness, are:

- Lower labour costs so that one might compete competitively on price
- Move towards more higher value added products and services and thus move the focus away from the cost of labour

The countries discussed in the models above, and in particular the Asian Tigers, all made their transition towards a higher value added economy.

An analysis of skill development initiatives in the Indian economy shows that, there is a disparity between the skills needs of the industry and the skills provided by training institutions. It is imperative that these be tackled for India to realise its full potential. As mentioned earlier, we believe that an understanding of global models would greatly help in this regard. We might consider implementing a combination of the Germanic, Asian Tiger and Anglo-Saxon models, suitably customized for the Indian context.



## 7. Recommendations

IMaCS has interacted with a cross-section of stakeholders encompassing Government, Educational Institutions, Students/unemployed youths and the Industry. A need for concerted skill development initiatives exists at all these levels. Some of the key findings of our field survey are as follows:

Stakeholder	Key findings
<b>Industry Feedback</b>	<ul style="list-style-type: none"> <li>• Employees are unwilling to travel long distance</li> <li>• Need to create infrastructure (stay, transportation and other facilities) to attract skilled employees</li> <li>• High turnover on account of people moving out too early or not joining the companies after the campus placement, job melas</li> <li>• Small units are suffering on account of high salary expectations by entry level technical people due to scarcity of such people</li> <li>• Educational institutions and Industry need to work more closely to industry specific skill sets and courses to meet industry demand</li> <li>• Increasing absenteeism and lack of discipline in the workforce affects industrial output</li> <li>• Need to develop inter-personal skills</li> </ul>
<b>Industry specific feedback</b>	
• <b>Pharma</b>	Lack of support industry like bulk drug suppliers, road connectivity and infrastructure bottleneck affecting the expansion of units
• <b>Light Engineering</b>	The light engineering industry faces issues such as shortage of human resources with engineering diploma's / certificate, non-availability of raw material locally,

Stakeholder	Key findings
	and high logistics costs combined with low labour productivity adding to the unviability of the units.
<ul style="list-style-type: none"> <li>• <b>IT/ITES</b></li> </ul>	Huge requirement for contiguous land for developing integrated IT Parks, lack of trained human resources with computer proficiency for ITES / engineers for IT.
<ul style="list-style-type: none"> <li>• <b>Textile</b></li> </ul>	The field survey of the textile industry revealed issues like high water consumption, heavy reliance on ground water which is depleting, unwillingness amongst workers to work in tough conditions, non-availability of raw materials (raw cotton) locally impacting the spread to other districts, and absence of integrated textile mills in the state combining spinning with weaving, fabric processing and garmenting reduces value addition of units
<ul style="list-style-type: none"> <li>• <b>Tourism and Hospitality</b></li> </ul>	High degree of seasonality deterring investments in remote locations which have high tourist potential, absence of state level tourism campaign to promote tourism and other lesser explored destinations to help position them amongst visitors and investors becoming difficult, lack of adequate star category hotels, poor customer experience and lack of service level standardization affecting the industry as a whole.
<ul style="list-style-type: none"> <li>• <b>Agro Processing</b></li> </ul>	Lack of cold storage facilities near the cluster affecting the agri-procurement during lean season.
<b>Government Feedback</b>	<ul style="list-style-type: none"> <li>• Focus on factor endowments, where employment can be created</li> <li>• Involvement of grass-root level training institutions</li> <li>• Strengthening of existing infrastructure facilities</li> </ul>

Stakeholder	Key findings
	<ul style="list-style-type: none"> <li>• Identifying human resources requirements of high growth industries</li> <li>• Develop integrated human resources development plan – State and District Level</li> <li>• Lack of clarity on the industry skill requirements</li> </ul>
<b>Educational Institutions Feedback</b>	<ul style="list-style-type: none"> <li>• Need to provide access to industry facilities outside the state</li> <li>• Develop network with other education institutions outside the state</li> <li>• Facilitate employment market information of other states</li> <li>• Focus on ‘Training the trainers’</li> <li>• Establish standards for different skill requirements specifically soft skills</li> <li>• Need for better infrastructure and optimal student to teacher ratio</li> </ul>
<b>Students/ Unemployed youths Feedback</b>	<ul style="list-style-type: none"> <li>• Need to create awareness about the career opportunities</li> <li>• Lack of employment market information</li> <li>• Lack of confidence to face the job interview</li> <li>• Unwilling to travel outside the state for employment (specifically at semi-skilled level)</li> <li>• Lack of transportation facilities to place of work</li> <li>• Lack of industrial exposures</li> <li>• Limited access to employment opportunities</li> </ul>

In this context, our recommendations are designed to address the following key questions:-

- What is the additional physical infrastructure required to meet Human Resource requirements of industries in Himachal Pradesh?



- What can be done by the various stakeholders, viz. Government, Industry and Educational institutions, to improve the employability of the state's human resources?
- What can be done to bridge the current and future skill requirement?
- How do we fund various skill development initiatives?
- What should be the implementation mechanism to drive the skill development initiatives?

The above areas will be addressed as part of human resources development plan which encompasses two broad areas:-

1. **State level human resources development plan**
2. **District level human resources development plan**

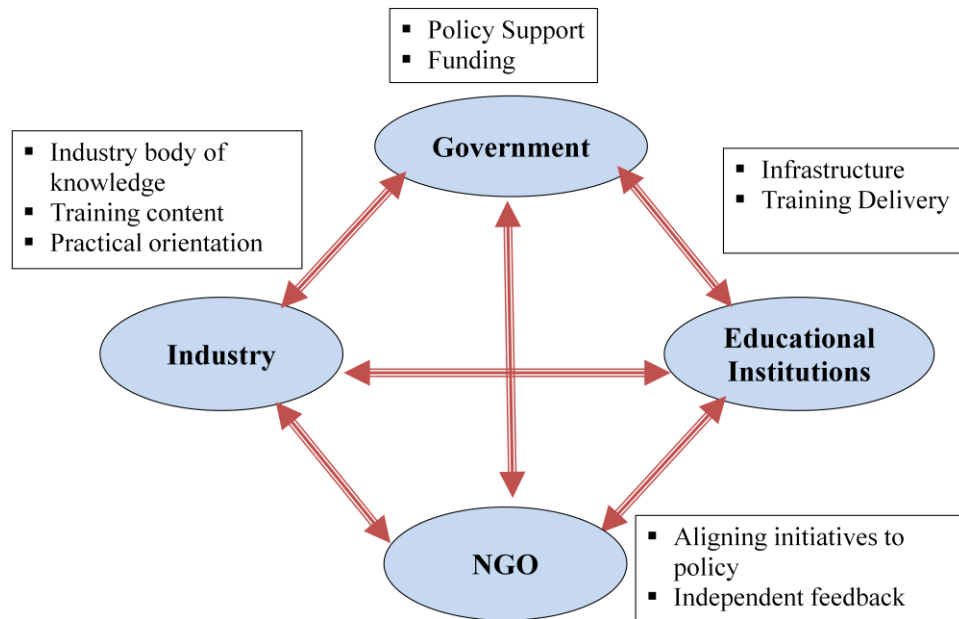
## **7.1. State level human resources development plan**

The focus of state level human development plan is to outline broad base skill development model for the state and suggest policy interventions to support various skill development initiatives.

### **7.1.1. Himachal Pradesh Skill Development Model**

Models to be adopted for skill building initiatives must be alive to the peculiarities of the Himachal Pradesh skills scenario. There is a need for structure in the delivery system, and an effective monitoring and assessment mechanism to enhance the efficiency and effectiveness of delivery of skill development initiatives in a coordinated manner.

'Co-creation' is one of the solutions that have evolved towards addressing the challenges facing the HP in the area of skill building. Various stakeholders – government, industry, educational institutes, Non-Governmental Organisations (NGO), and the society at large, should work together in a coordinated manner in order to transform the 'skill development landscape' of the state.

**Figure 50 The framework for ‘Co-creation’ skill development model**

While the government should take the lead in suitably structuring the policy framework and funding skill development initiatives, the industry should serve as a ‘body of knowledge’ in terms of aiding in formulating curriculum, training content, and participating in delivery. The industry should also participate actively in PPP initiatives.

Educational institutes should play a lead role in upgrading infrastructure, training delivery, and implementing stakeholders’ recommendations. NGOs should channelize individual initiatives and align their delivery to the overall policy framework. Attempts should be made to involve the society in every way possible.

Concerted efforts by all stakeholders would result in the optimum utilization of resources and ensure effective and efficient delivery of skill development initiatives. The proposed skill development initiatives should focus on:

- Evaluation of the existing policy framework and initiatives on an ‘*outcome basis*’
- Understanding the gaps in policy framework and implementation from the perspective of requirements of human resources and skill sets vis-a-vis the current focus areas of the policy

- Modifying the policy and channelising the implementation initiatives to suit the needs of the industry while meeting the social objectives.
- Roles and responsibilities of various stakeholders and ways of encouraging participation of private sector in skill development whether individually or through alliances.
- Synergies between training and dynamic labour market requirements.
- Imparting of various levels of skills such as basic/ life skills, technical skills, vocational education and training, higher level skills, remedial skills, ongoing skills upgradation
- Skill development should be viewed from investment perspective
- Establishment of an effective review and monitoring mechanism.

Given this background, we propose a 'tier-ised' approach to skill building, focused on four broad target segments of the workforce of HP:

- Workers with minimal education but skillable
- Those who have undergone vocational training (Skill Category I)
- Those who have undergone higher education (Skill Category II)
- The part of the workforce requiring specialized, high-end skills.

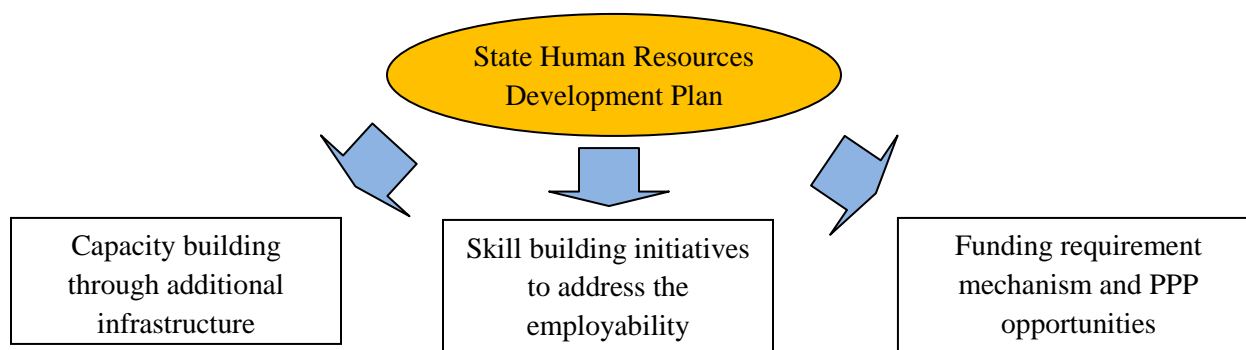
**Figure 51 A 'tier-ised' approach to Skill Building**



- i. **Minimal education category:** - This is the skilable category which focuses on imparting basic skills to people with minimum or no education and serves as a lead to entry level/contractual employment opportunities. This level comprises of 36%-38% of the total demand of human resources requirement by 2015.
- ii. **Skill Category Level I and Level II:** Level I comprises of 28%-30% and Level II comprises of 31%-35% of the total demand. These categories can be imparted in short duration. The focus is on employability of Engineering, Diploma, Arts and Science Graduates (Skill category 1) and ITI's (Skill category II).
- iii. **Specialized Skills category:** This level comprises of 1%-2% of the total demand. This level has a focus on specialized skills, requires customization and takes time to impart and is important for creating long term capability building of the state.

## 7.1.2. State level skill development initiatives

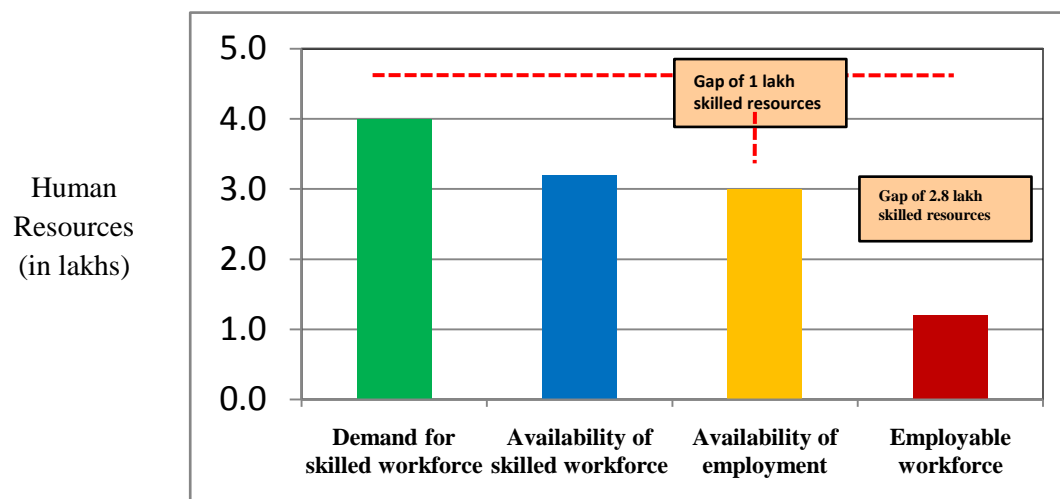
As part of state level human resources development plan, we propose three types of skill development initiatives:



### 7.1.2.1. Capacity building through additional educational infrastructure

The demand for skilled workforce as part of the overall workforce requirements is estimated to be around 4.0 lakhs till 2015. Supply of skilled workforce available for employment is estimated to be around 3.0 lakhs till 2015. As a result, there is shortage of one lakh skilled human resources predominately emanate from engineering trades.

Figure 52 Demand – Supply Gap



Given this background, it is necessary to relook at capacity planning of technical education spanning ITI's, Engineering and Polytechnics. Based on the projected human resources requirement by 2015, the state needs to double the capacity of technical education from current capacity of 11494 seats to 20,000 seats annually.

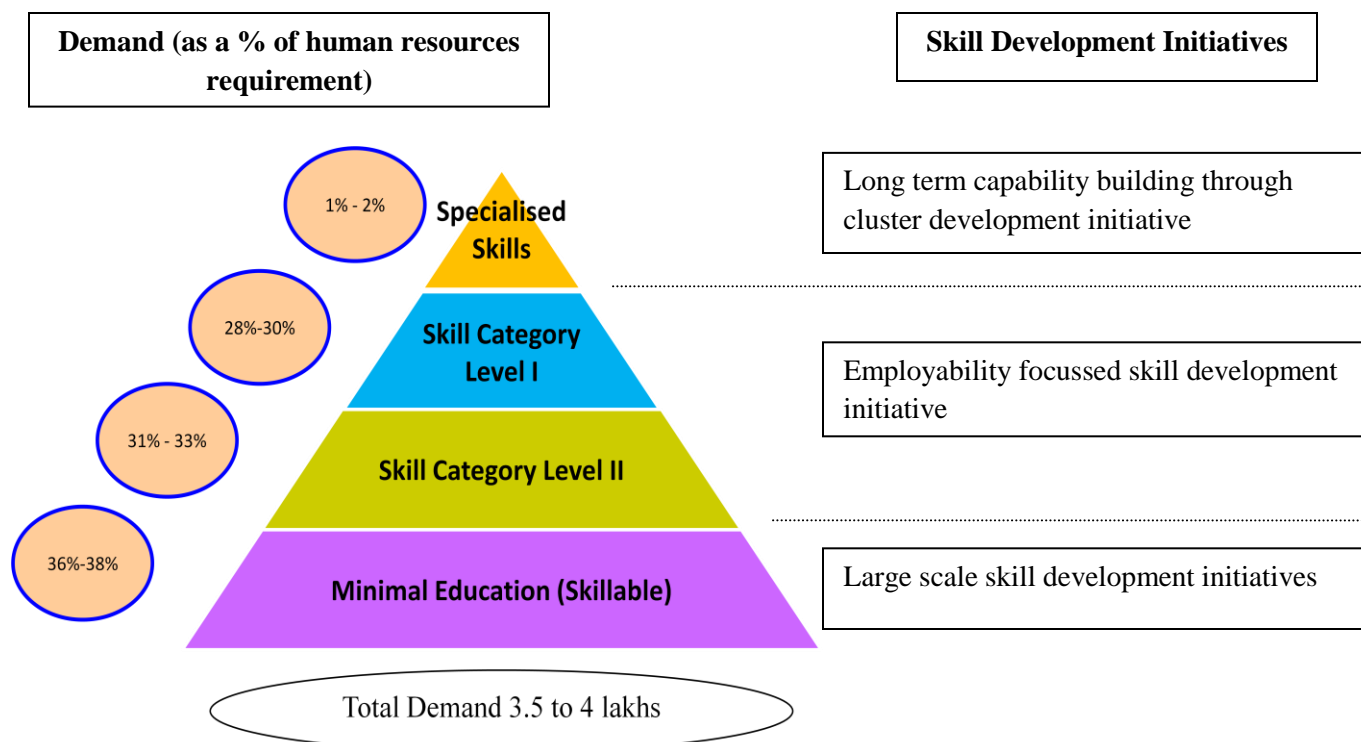
Table 41 Capacity Planning of Technical Education

#	Stream	Existing Capacity	Required Capacity	Deficit
1	Engineering	2235	3500	1465
2	Diploma	1600	4500	2900
3	ITI	7986	12000	4014
	Total	11494	20000	8379

### 7.1.2.2. Skill building initiatives to improve the employability of employable youths

The focus and intensity of skill development initiatives will differ for different levels. We propose following skill development initiatives to address the employability concerns.

**Figure 53 'Tier-ised' approach to skill development**



Source: IMaCS Analysis

### 7.1.2.2.1. Large Scale Skill Development Initiative for the minimal education category:-

Large Scale Skill Development Initiative is aimed at imparting basic and advanced training to manage migration of unskilled people to move to jobs in industries in a structured manner. The three key steps would be pre-employment training, skill building and employability. The target group includes School Drop-outs, Agricultural Workers, and Second generation of agricultural workers. This initiative has two levels - Level 1 focus on basic training programme, while Level 2 focus advanced training programme.

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**Level 1: Basic Training Programme:** This programme is aimed at imparting basic training to unskilled people to create awareness about the industry and provide basic skills for employment. The target industries include Construction, Agro processing, unorganised retailing and Tourism.

The focus is to provide exposure to general industrial culture – covering work discipline, safety, work rules as well as role expectations. The short industry specific training spans over 4 to 8 weeks. The Programme would be delivered at block level using existing primary education infrastructure, projects sites (specifically for construction and agro processing jobs).

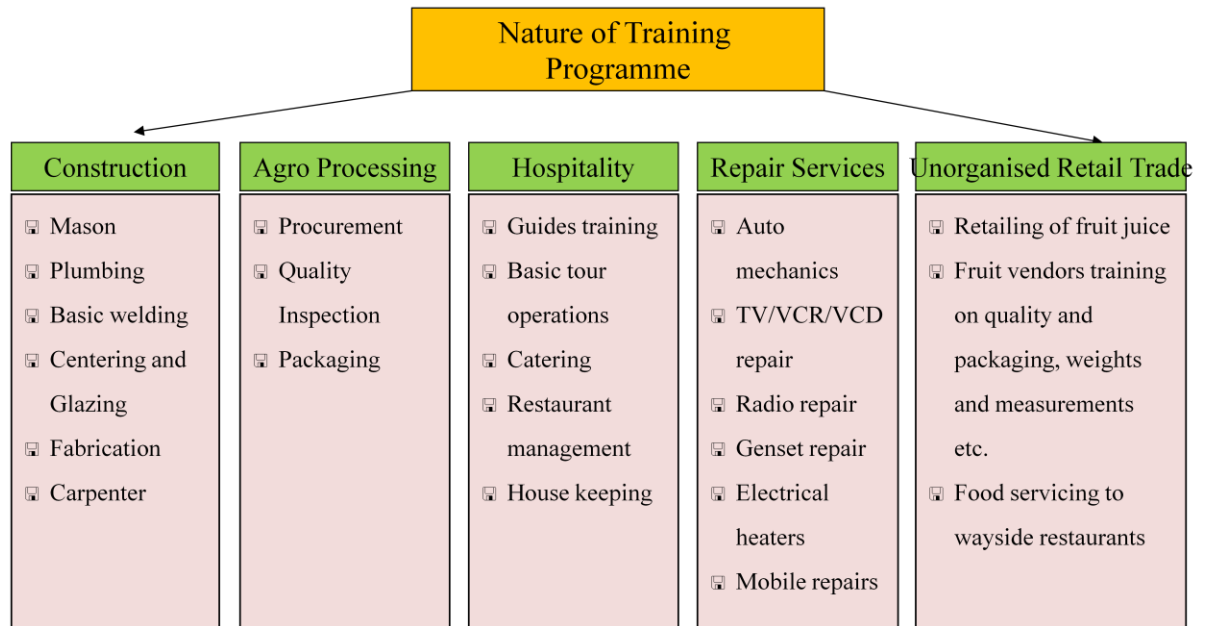
**Level 2: Advanced Training Programme (ATP):** This programme is aimed at imparting advanced training to people who have undergone basic training programme (Level 1) and unskilled people from Industries with an objective of sharpening their industry specific skills.

The target industries include Construction, Agro processing, unorganised retailing, Tourism and Repair

The focus is to provide specific functional skills required for a particular industry, and to provide a recap on general industrial culture covering work discipline, safety, work rules, functioning as well as role expectations. The training spans over 10 to 12 weeks. The Programme would be delivered at district level using existing education infrastructure

Training content will be developed in association with industries and MES. MES will provide necessary skill certification (Advanced Training Programme) to candidates at the end of training programme.

**Figure 54 Nature of training programme under different industries**



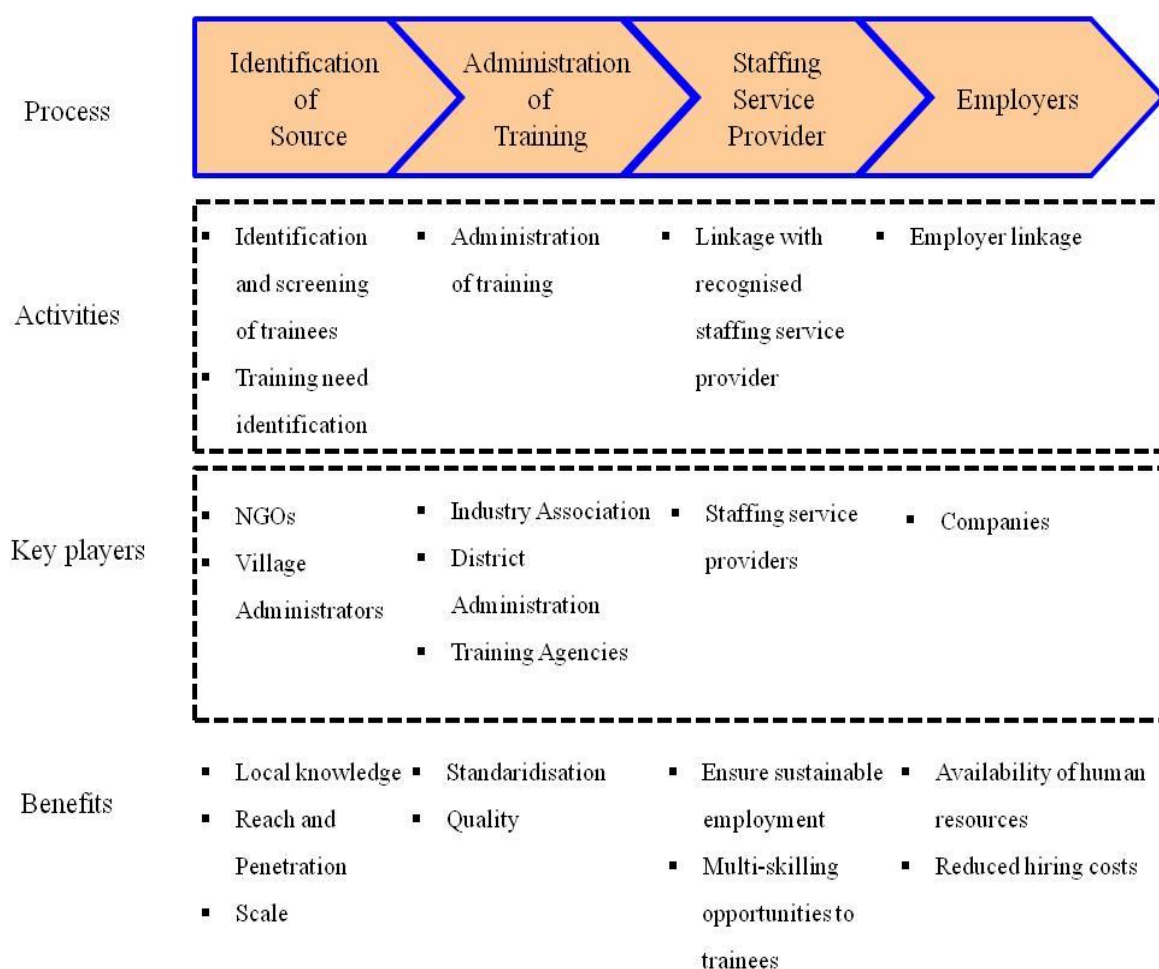
To ensure the effectiveness of the training programme, the large scale skill development initiatives should focus on the following key issues:-



- **Standardization** : Identifying training need, Development of training content based on user industry requirement, and Evaluation methodology
- **Forward and backward linkages** : Identifying sources of manpower, training partners, staffing partners, and prospective employers
- **Scalability** : Ability to ramp up quickly scalability across industries and regions

**In this context, we propose following deployment plan for large skill development initiatives**

**Figure 55 Deployment of Large Scale Skill Development Initiative**



### **Implementation of the Large Scale Skill Development Initiative**

- **Target Group:** Minimal educated employable youths
- **Pilot Locations:** Bilaspur, Chamba, Sirmaur, Una and Solan

- **Coverage:** 1<sup>st</sup> year: 10,000 people; 2<sup>nd</sup> year: 30,000; 3<sup>rd</sup> year: 75,000 people
- **Funding Requirement:** 80 to 90 crores
- **Key implementation activities:**

#	Stage	Activities	Responsibility
1	Identification of Trainees (minimal educated youths)	<ul style="list-style-type: none"> <li>• Registration of target group (minimal educated youths)</li> </ul>	<ul style="list-style-type: none"> <li>• Employment Exchanges</li> </ul>
		<ul style="list-style-type: none"> <li>• Screening and short listing</li> </ul>	<ul style="list-style-type: none"> <li>• Employment Exchanges</li> </ul>
2	Administration of training	<ul style="list-style-type: none"> <li>• Preparation of course material</li> </ul>	<ul style="list-style-type: none"> <li>• Technical education under MES system</li> </ul>
		<ul style="list-style-type: none"> <li>• Identification of education infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Technical education</li> </ul>
		<ul style="list-style-type: none"> <li>• Identification and Registration of NGO's</li> </ul>	<ul style="list-style-type: none"> <li>• CII Skill Development website</li> <li>• ASSOCHAM</li> <li>• FICCI</li> </ul>
		<ul style="list-style-type: none"> <li>• Certification</li> </ul>	<ul style="list-style-type: none"> <li>• CII</li> </ul>
3	Employment Market Linkage	<ul style="list-style-type: none"> <li>• Identification of target companies and staffing companies</li> </ul>	<ul style="list-style-type: none"> <li>• CII Skill Development website</li> <li>• ASSOCHAM</li> <li>• FICCI</li> </ul>
		<ul style="list-style-type: none"> <li>• MoU with companies and staffing agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Labour &amp; Employment</li> </ul>
4	Review and Monitoring		<ul style="list-style-type: none"> <li>• Labour &amp; Employment with regular feedback from staffing agencies and companies</li> </ul>

The state government should support the skill development initiative by way of adequate support from the Skill Development Fund

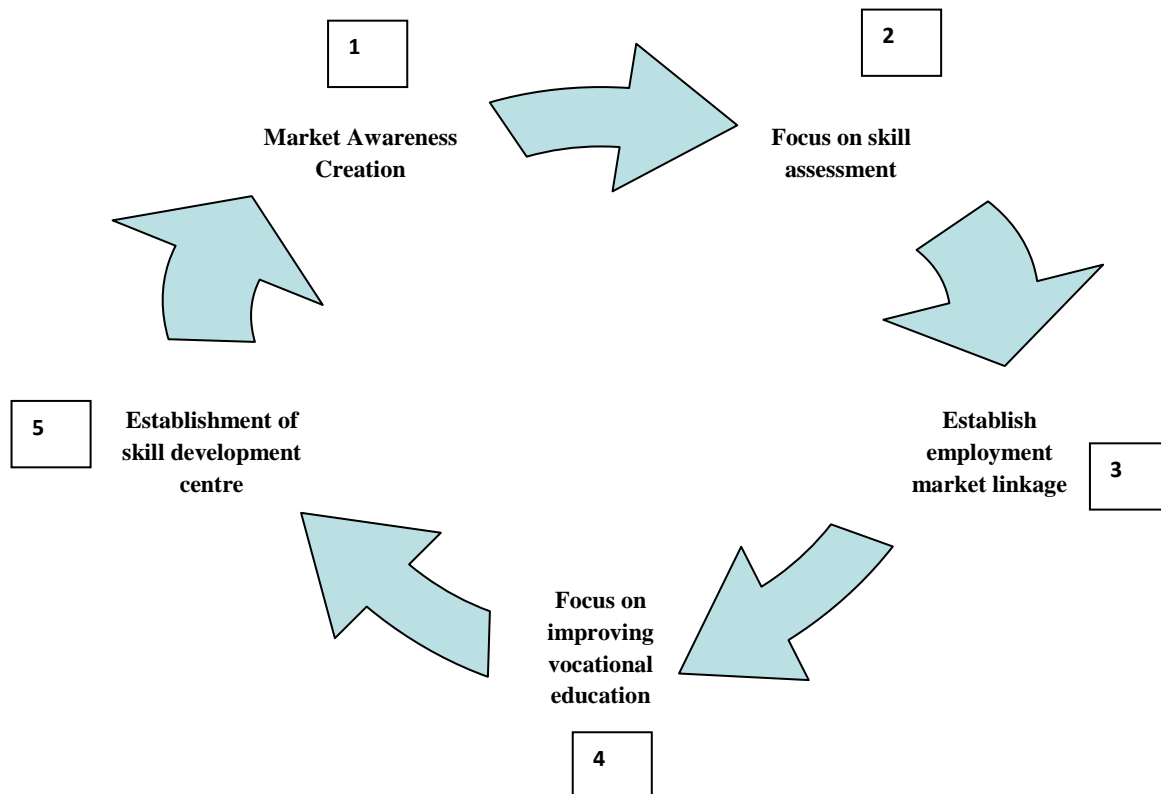
- **Roll-out plan:**

- Conceptualisation: August 2008
- Pilot Plan: September 2008

### 7.1.2.2.2. Employability Focused Skill Development Initiative for Skill Category Level I and II

Employability Focused Skill Development Initiative is aimed at improving the overall employability of students to meet industry standards (category: Skill Level I and II). Employability Focused Skill Development Initiative focuses on the following five steps:-

**Figure 56 Employability Focused Skill Development Initiatives**



## 1. Creating Market Awareness

The focus of this initiative is aimed at setting high aspirations, creating awareness about emerging trends and opportunities and creating role models. The target group includes Engineering & Diploma students, Arts & Science Graduates and ITIs.

Under this initiative, we propose following actions:

- Short term exchange programme (duration of 4 to 6 weeks) with leading educational institutions and companies in India

#	Stage	Activities	Responsibility
1	Identification of educational institutions and companies	<ul style="list-style-type: none"> <li>• MoU with select educational institutions and companies for short term exchange programme</li> </ul>	<ul style="list-style-type: none"> <li>• Department of Higher Education</li> <li>• Industry Department</li> </ul>
2	Identification of top students	<ul style="list-style-type: none"> <li>• Screening and short listing at district level</li> </ul>	<ul style="list-style-type: none"> <li>• Higher Education</li> </ul>
3	Placement	<ul style="list-style-type: none"> <li>• Final selection of students</li> </ul>	<ul style="list-style-type: none"> <li>• Higher Education</li> </ul>
4	Review and Monitoring		<ul style="list-style-type: none"> <li>• Higher Education</li> </ul>

- Another initiative is the Participation in World Skills Competition which focuses on vocational training and facilitates learning and benchmarking of vocational education. Over 40 trades are currently available in the competition. This initiative would be co-ordinated through CII.

## 2. Skill Assessment, Monitoring and Support

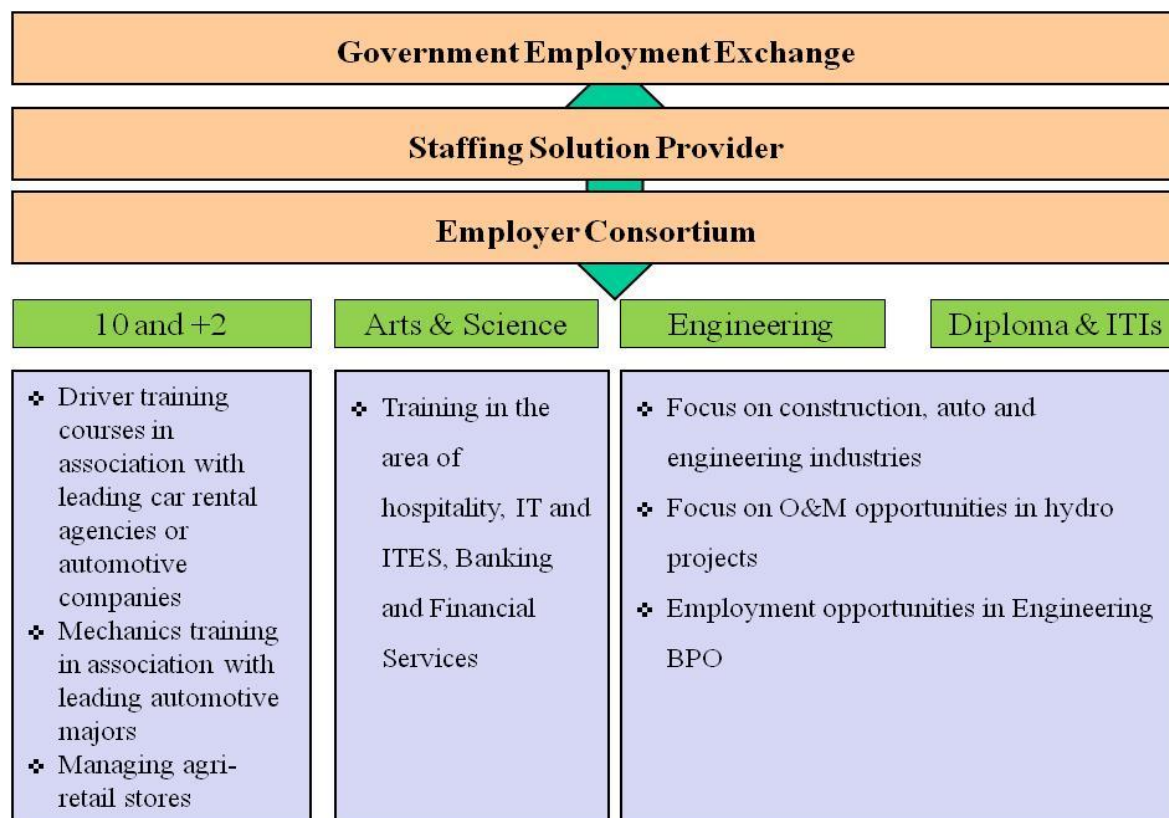
The objective of this initiative is to map the current level of soft skills of students with respect to industry standards. The focus should be on Engineering, Polytechnic and ITIs. Activities include skill assessment of 1st year students, review of the process annually to provide feedback at regular intervals, and undertaking a specific skill development programme in the area of soft skills. To ensure effective implementation, we propose a skill assessment to be conducted immediately after the admission counselling is complete and the results should be review annually through the placement co-ordinator.

#	Stage	Activities	Responsibility
1	Identification of assessment agency	<ul style="list-style-type: none"> <li>• MoU with leading soft skill trainer e.g. British Council, University of Cambridge</li> <li>• Agree on service level performance</li> </ul>	<ul style="list-style-type: none"> <li>• Department of Higher Education</li> <li>• Industry Department</li> </ul>
2	Identification of students	<ul style="list-style-type: none"> <li>• Admission counselling</li> </ul>	<ul style="list-style-type: none"> <li>• Training Organisation</li> <li>• Educational Institution</li> </ul>
3	Testing	<ul style="list-style-type: none"> <li>• Undertake online or off-line testing</li> </ul>	<ul style="list-style-type: none"> <li>• Training organisation</li> </ul>
4	Administration of training	<ul style="list-style-type: none"> <li>• Regular examination</li> </ul>	<ul style="list-style-type: none"> <li>• Training organisation</li> </ul>
5	Review and Monitoring		<ul style="list-style-type: none"> <li>• Placement Co-ordinator, Educational Institution</li> </ul>

### 3. Strengthening Employment Market Linkage Initiative

The objective of this initiative is to strengthen employment market linkage initiative by networking with staffing agencies thus linking supply with demand. The target group includes Engineering, Polytechnic, ITIs, Arts & Science Graduates, 10th and +2. Activities include identifying staffing solution provider e.g. Naukri, Monster.com, JobsAhead.com, mapping current skill gaps of target groups, conducting orientation programme on the job market scenarios, employment opportunities and skills required, and administering target group specific training programmes.

**Figure 57 Deployment of Employment Market Linkage**



#### 4. Initiatives aimed at improving ITIs :

- i. **Experience Sharing:** A common experience sharing platform should be set-up to facilitate interaction with other ITI's. Case studies of good performing ITIs, including their efforts for internal revenue generation and meeting training needs of students and placements can be exchanged.
- ii. **New Trades:** New trades can be introduced with an approval from MES, which requires less time than NCVT approval, in order to cater to the local industry requirements. For these new trades, a State Trade Certificate may be given initially thereafter National Trade Certificate may be given, once NCVT approval comes in.
- iii. **Short Term Courses:** ITIs are allowed to provide short term courses to school dropouts. State Directorate in association with the industry can identify short term training courses in key

occupational areas and introduce them in ITIs in those areas. These would be introduced under the jurisdiction of the MES

#### 5. Initiatives aimed at improving course curriculum :

Based on our field survey and discussion with Industry, we propose introduction of following specialisation as part of regular courses.

**Table 42 Improvement in course curriculum and specialisation**

Industry	Specialization
Tourism	<ul style="list-style-type: none"> <li>• Inter-state tour operations</li> <li>• Orientation to foreigners (Global adjustment)</li> <li>• Ticketing</li> <li>• Logistics management</li> <li>• Pricing strategy</li> <li>• Customer Relationship Management</li> </ul>
Agri-Procurement	<ul style="list-style-type: none"> <li>• Quality control and lab management</li> <li>• Food retailing and branding</li> <li>• Packaging</li> <li>• Food quality and regulation</li> </ul>
Drugs and Pharma	<ul style="list-style-type: none"> <li>• IPR</li> <li>• Risk Management</li> <li>• Cost Control</li> </ul>
Construction	<ul style="list-style-type: none"> <li>• Project Planning and Scheduling, Accounting and Control Systems</li> <li>• Project Proposals, Cost Estimation and Tendering</li> <li>• Contract Management</li> <li>• Legal Aspects of Project Management, Risk Management and Insurance</li> <li>• Project Formulation, Appraisal, Project Finance and Structuring</li> <li>• Site Management</li> <li>• Health, Safety and Environmental Management</li> <li>• Information Technology for Project Management</li> <li>• Human Resource Development and Management</li> </ul>

Industry	Specialization
IT/ITES	<ul style="list-style-type: none"> <li>• Specialisation in the area of medical transcription</li> <li>• Focus on communication – spoken and written</li> <li>• Focus on behavioural courses to improve team building, stress management and time management.</li> </ul>
Light Engineering	<ul style="list-style-type: none"> <li>• In ITIs Trades like welding, turning, machining and milling can be strengthened with the following additional skill sets like focus on CNC and ISO Quality / Six Sigma.</li> <li>• Focus on manufacturing technology, CAD/CAM and industrial automation</li> <li>• Focus on prototyping, product development, styling, testing and validation</li> </ul>
Textiles	<ul style="list-style-type: none"> <li>• Focus on design, textile chemistry, spinning courses and garmenting</li> <li>• Focus on market access knowledge, merchandising, patternmaking, finishing and quality control</li> <li>• Focus on quality</li> </ul>

#### iv. Functioning of IMCs

- The role of IMC Chairman is very important in functioning of IMCs. Selection should be based on certain criteria like willingness to network with other companies and willingness to devote more time to carry out ITI related activities etc.
- The IMC needs to consider the hiring on contract of an administrator, who will oversee the execution of various activities of IMC on schedule - this person could be a retired administrator or someone with industry background and who is aware of ITI related issues.
- ITI Principal should be given key responsibilities, with active participation of faculty for :
  - Liaisoning with industry for training opportunities and placements
  - Inviting industry to visit ITI and improve the low brand image from which certain ITIs suffer
  - Getting industry to participate in designing course structure
- All IMCs should be monitored and rated to take any corrective action at State level



## 6. Skill Development Centre :

Skill development centre is established with the help of Government, Industries and Institutions to facilitate focused skill development in the industry cluster. Each industry cluster will have a skill development centre. To start with, the skill development centre should be established in Pharma, Light Engineering, IT/ITES, Tourism, and Construction clusters. Skill Development Centre is managed by a council of members representing key stakeholders.

### Role of Skill Development Centre:

- Establishing faculty and Industry Managers forum to facilitate sharing of knowledge and upgradation of faculty skills
- Providing cluster specific training programmes
- Undertaking focused industrial visits
- Developing internship opportunities
- Imparting Guest lectures (could be a common program for the cluster of colleges)
- Participating in live projects
- Faculty evaluation and development
- Developing teaching aids
- Carry out periodic assessment of skill needs of industry
- Assisting in Employment
- Curriculum revamping
- Carry out tierisation of industries based on their level of participation in the cluster activities

### 7.1.2.2.3. **Cluster Development Initiative for the Specialized Skills Category**

The objective of this initiative is to build long term capability of skilled human resources and to maintain competitiveness of resident industries. The focus industries would be Tourism, Pharma, Power and IT/ITES. The skill development activities include Research and Development, Interfacing with educational institutions, facilitating exchange of information, and faculty development initiatives. To ensure effective implementation, we propose appointing project manager to manage and co-ordinate cluster development initiative.

**Figure 58 Deployment of cluster development initiative for building long term capability**

#	Stage	Activities	Responsibility
1	Develop cluster development plan	<ul style="list-style-type: none"> <li>Identify key industries attributes</li> <li>Identify forward and backward linkages to sustain competitive advantage of cluster</li> <li>Facilitate creation of forward and backward linkages</li> <li>Identify key performance gaps</li> </ul>	<ul style="list-style-type: none"> <li>Project Manager, Industry Department</li> </ul>
2	Perspective plan for skills development	<ul style="list-style-type: none"> <li>Identify current and future skill requirement</li> </ul>	<ul style="list-style-type: none"> <li>Labour &amp; Employment</li> <li>Project Manager, Industry Department</li> </ul>
3	Administration of skill development initiative		<ul style="list-style-type: none"> <li>Project Manager, Industry Department</li> </ul>
4	Review and Monitoring		<ul style="list-style-type: none"> <li>Project Manager, Industry Department</li> </ul>

**Cluster Development Initiative – Tourism and Hospitality Industry**

Himachal Pradesh is an important tourist destination for both the Indian and the foreign traveller. The state has an inherent advantage as it can be easily promoted as an all-weather tourist destination. The sector accounts for 8.71% share in the state NSDP for the year 2006 and its contribution grew at a CAGR of 6.4% for the period 1995-2006. However the potential exists for the sector to grow much more in the coming years. Tourist arrivals have been growing at approximately 7.8% since 2001 to reach about 7 million domestic tourists and 0.2 million foreign tourists in 2006.

Considering the employment potential and revenue potential of Tourism and Hospitality Industry, we propose an integrated cluster development initiative. The purpose of this initiative is to:

- Increase tourist inflow,

- Increase tourist nights,
- Increase tourist expenditure
- Provide infrastructure support
- Identify and satisfy needs of niche segments

Under the cluster development initiative, we propose following key action points:-

- i. Promote HP tourism with specific focus on options, differentiation and experience. In this context, we are proposing segmentation of HP tourism industry into number of tourist circuits targeting various special categories of tourists.
  - a. Leisure Tourism focusing on Parwanoo, Chail, Kasauli, Shimla and Kullu/Manali
  - b. Adventure Tourism focussing Chamba, Lahaul & Spiti (Camping and Trekking), Kangra (Water Sports), Bilaspur (Water Sports) and Manali
  - c. Cultural Tourism focussing on Hindu temples and Buddhist temples
  - d. Rural Tourism to experience the local culture
  - e. Agri Tourism to experience the farming practices
  - f. Promoting hydel projects as a wayside tourism destination along with other tourist location targeting students and packaged tour operators.
- ii. Establish Arts & Crafts village in Dharamsala and organise following activities:-
  - a. **Themed Evening Entertainment: -**

The themed evening entertainment featuring lifestyle of local people with authentic dinner and entertainment can be created to visitors especially coach tours. The themes for consideration might include rituals of HP performed by local people with local costume and entertainment.
  - b. Potential venues could include an existing bungalows or mansions or proposed Arts & Crafts village.

- c. **Arts & Crafts Training:** - To experience the arts & crafts of local people, special training can be organised to visiting tourist.
- d. **Promotion of Arts & Crafts:** UNESCO provides external assistance for promoting arts and crafts

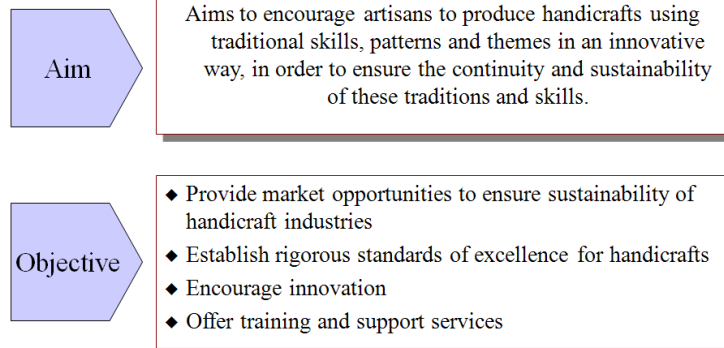
### *UNESCO provides external assistance for promoting arts and crafts*

- ◆ Option to approach UNESCO for assistance
  - Promotion of diversity in all its forms of contemporary cultural expression, through the promotion of various cultures (the values they embody and the forms of expression, which ensure their authenticity and identity) in accordance with the autonomy and freedom of expression of the artists.
  - Improving the efficiency and the correct management of national or regional, cultural and artistic institutions, as well as of any other structure or equipment with a cultural calling, through, among others, the training of specialists in development and cultural action (planners, managers, artistic activity leaders, technicians).
  - Research in the field of contemporary cultural practices. (Including cultural development, cultural production and circulation, etc.)
  - Promotion of culture with new audiences and new publics, namely by the organization of exchanges and of network development.

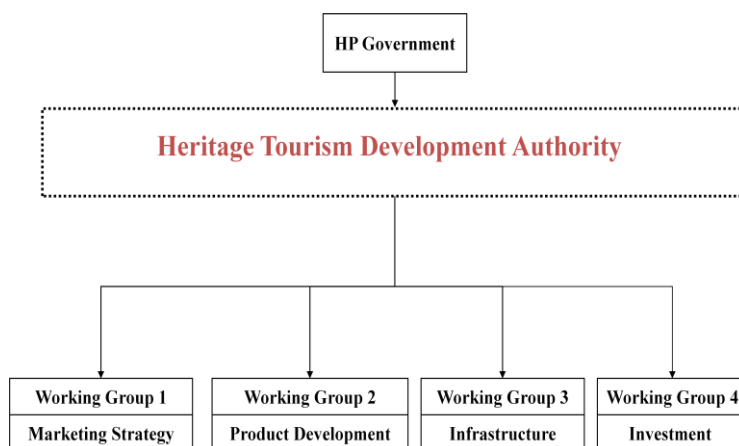


### *UNESCO provide marketing support to craftsman through 'Seal of Excellence' awards*

#### UNESCO Seal of Excellence



- e. **Food Festivals:** Provide local cuisine to tourists and conduct food festival
- iii. To provide support to visiting tourist, we propose setting-up of:
- Self-service information points at a number of strategic locations e.g. Airports, Railways Stations, Hotels etc.,
  - Consider the provision of information kiosks at high density tourist spots
  - Introduce a system of information tourist signage
  - Have dedicated information and transaction oriented website to provide one stop solutions to tourist in terms of accessibility, reservation, booking packages, linkage to tourist operators, local guides, taxi operators etc.
  - Recruit a network of volunteer as an informational guide.
  - Set up a common call centre to provide tourist information – a cost effective means that can be accessed from all tourist destinations and the entry points
- iv. To improve the overall quality of human resources, we propose tourism related skill development interventions (**covered as part of district development plan**)
- v. To drive tourism activities in Himachal Pradesh, we propose setting-up of Heritage Tourism Development Authority under the HPTDC at the district level to promote various tourism circuits focusing on marketing, product, and infrastructure and investment strategy.



### Cluster Development Initiative – Pharmaceuticals

The sector has grown rapidly and accounted for 26.8% of the total manufacturing output in the year 2004. The potential for the sector is highlighted by the fact that the output in 2004 was approximately double the output recorded in 2003. The sector also accounts for 10% employment out of the total industrial employment.

Baddi Industrial area has emerged as a pharmaceutical hub in the state which has resulted in significant presence of input suppliers. Around 147 large and 734 small pharmaceutical units have been given approval since the announcement of the incentive package.

To facilitate development of pharmaceutical industry, we propose setting-up of centre for excellence in biotechnology and bioinformatics.

### **Cluster Development Initiative – Power**

The total hydel power potential has been estimated at 20,815 MW (approximately 24% of total potential in the country) out of which 6353 MW has been harnessed to date. Given the employment potential of hydropower industry, it is important to develop the resident skills of employable youth to cater to the projected human resources requirement. In this context, we propose setting-up of training centre in association with investing companies to provide skilled human resources. This centre will act as a source of trained human resources for the state.

### **Cluster Development Initiative – IT/ITES**

Presently, Himachal Pradesh does not have any significant investments in the IT & ITES sector. However, the industry is expected to grow due to persistent efforts by the government to implement IT all levels. Recent initiatives include setting up of 5 IT parks at Wagnaghat and Nalagarh in Solan district, Palampur and Nurpur in Kangra district and Dalhousie in Chamba district and BPO/ITES training labs in 26 colleges and shall soon be expanded to others. Though, these initiatives would help in attracting Tier II and III companies to invest in IT/ITES, the long term sustainability comes from developing HP as a source of IT/ITES trained human resources to other locations like Chandigarh, Gurgaon, Delhi etc., In this context, we propose setting-up of **Centre for Data Analytics** (CDA) in Shimla to provide high end skilled human resources to IT/ITES companies. This would help in attracting new investments and also improve the employability of students.

*To illustrate the impact of cluster development, we have outlined a case study pertaining to plastic mould manufacturing industry in China*



**Table 43 Cluster Development Initiative - A Case Study**

- Yuyao is a county-level city located in Ningbo, Zhejiang province. Plastic manufacturing started way back in 1960s. Accompanying the development of the plastic industry, the demand for moulds rapidly increased. As a result, a large number of factories began to specialize in mould production in the 1980s. According to the China Die and Mould Association, in the mid-1980s, the capacity of Yuyao mould production and injection accounted for one fourth of all of China.
- In the beginning of the 1990s, China Light Industry Association (CLIA) invested more than 30 million Yuan in Yuyao to build a model company named the Zhejiang Moulds Production Center (ZMPC). ZMPC received a complete suite of mould machines, with the capacity for integrated production. However, because the capacity was not fully utilized and for other managerial reasons, this company soon went bankrupt
- To improve the overall production system of Yuyao mould industry, the Government and Industry had initiated series of interventions:
  - The market is managed by a committee, which has staff from Government as its members.
  - The managing committee built two raw material sub-markets in the 1990s. They invited domestic and overseas raw material producers to setup their sales outlets within these markets. This process stabilized the price of raw material and ensured the availability at all times.
  - The managing committee has built a 5,000 square meter precision-processing zone, at the cost of 50 million Yuan. They encouraged the top companies in Yuyao to put their unused machines in this zone so that the local SMEs could share the excess capacity. On the other hand, students of local colleges can also make use of this precision-processing zone as their training center. By 2006, more than 40 sets of machines had been introduced to this zone.
  - The managing committee established a training center for skilled workers, in cooperation with the Baotou Technology College and the Yuyao education department. By September 2006, this center had trained more than 200 mould workers. It also has introduced 33 students who learned mould technology such as CAD/CAM in college.
  - The managing committee built a mould technology and machine exhibition center. More than 100 types of moulds from Yuyao's top 12 companies and those of other SMEs are being exhibited in this center
  - The managing committee established an information center in 2003, in cooperation with the science department of Zhejiang province. It also established its own website. By 2006, this center had accepted 133,200 members and exchanged information with members.

- Subsequently, the managing committee established an inspection and measurement center, so that they would be able to provide authoritative reports to solve technological related problems. This center is in cooperation with the following two departments:
  - The Weapon Science Academy Ningbo branch for analyzing the ingredients of metal materials;
  - Yuyao QC center for measuring the length and cubic content of moulds.
- Finally, the managing committee established an R&D center for mould innovation in August 2006. Currently, it is in cooperation with the following three institutes:
  - The Automobile Institute of Zhejiang University for the recommendation of new technologies;
  - The Beijing Machinery Institute for the development of new software;
  - The National Level Laboratory of Moulds in East China Science University for researching the fundamental theory of moulds.
- A strong external linkage between the SMEs of the Yuyao Cluster and China's various domestic institutions has been formed.
- During the period from 2001 to 2005, the number of mould production companies more than doubled. At the same time, the number of mould processing companies increased by more than a factor of three.
- Currently, the production of moulds in Yuyao Market is divided into design, software development, wire cutting, NC line, tools, parts, and so on. Each manufacturing process is taken care of by specialized companies.
- The deepening of the division of labor directly caused a lower production cost. It was said that the mould prices in Yuyao were only one third of those in Japan and half of those in Guangdong province in 2002. The difference in estimated prices between the companies in Yuyao Market in this year is within the range of 10-15%.



### 7.1.3. Funding Requirement and mechanism

Based on type of skill development initiative and extent of coverage, IMaCS worked out skill development fund requirement.

**Figure 59 Funding Requirement**

#	Initiatives	Activities	Focus	Benefits (No. of People/Annum)	Rs. Cr
1	Large Scale Skill Development Initiative	Basic Training Programme	Bilaspur, Chamba, Solan, Una, Sirmaur, Lahaul & Spiti, Kinnaur	75,000	45
		Advanced Training Programme	Bilaspur, Chamba, Solan, Una, Sirmaur, Lahaul & Spiti, Kinnaur	75,000	45
2	Employability Focussed Initiatives	1. Creating Market Sensitisation			2
		<i>Short term exchange programme</i>	Plus two, Degree, Diploma Students	50	0.05
		<i>Participation in WorldSkills Competition</i>	ITI's	10	0.1
					2
		2. Skill Assessment and Monitoring	Degree, Diploma and ITI Student	Covering all students through PPP	10
		3. Strengthening employment market linkage	All Districts		2
		4. Initiative aimed at improving ITI, Polytechnics and Colleges	Introduction of courses, content, training infrastructure		10

#	Initiatives	Activities	Focus	Benefits (No. of People/Annum)	Rs. Cr
		5.District level skill development centre	Pharma, Light Engineering, IT/ITES, Tourism, and Construction clusters		25
3	Cluster Development Initiative	Establish specialised institutes			150
		<i>Arts &amp; Crafts Village</i>	Tourism & Hospitality		
		<i>Centre for Data Analytics</i>	IT/ITES		
		<i>CoE in biotechnology &amp; bioinformatics</i>	Pharmaceuticals		
		<i>Power training institute</i>	Power		
		<i>Driver Training Institute</i>	Transportation		
<b>Total Funding Requirement (Rs.Cr)</b>					<b>290</b>

To fund the above initiatives, we propose establishment of Skill Development Fund (SDF) and public private partnership (PPP) in skill development.

### 7.1.3.1. Skill Development Fund

The objective is to promote the various skill development initiatives like:

- Large Scale Skill Development Initiative
- Employability Focused Skill Development Initiative
- Cluster Development Initiative

### **Sources of Funds**

Total funding in the range of Rs. 290 - 300 crore annually. This should be funded through innovative funding mechanisms such as:

- Initial corpus fund to be established by the government to facilitate training of workers
- Three way tie-up with financial institution, training organisation and employers. The financial institution would provide necessary loan facility to trainee on guarantee from the state government. Once trainees get employed, the company would pay the financial institution which would be deducted from the salary of the trainee.
- While this would cover 50 - 60 % of the total fund requirement, the balance funds could be in the form of budgetary support from the state government or funding from multilateral agencies

### **Administration of Skill Development Fund**

- The government should identify a nodal agency to manage the disbursement of funds to support the various training initiatives
- The nodal agency should have a governing body comprising of representations from industry, government and academicians to oversee the performance of the agency and its various activities

### **Role of Nodal Agency**

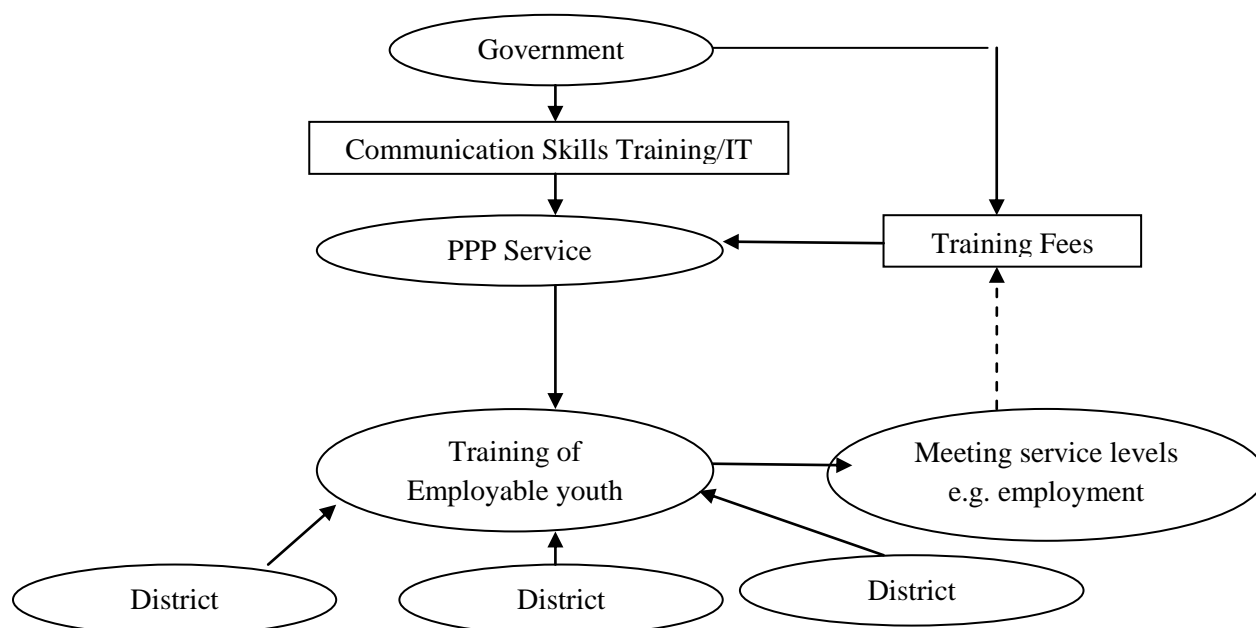
- To establish guidelines for funding skill development initiatives
- To identify initiatives that meet the guidelines and channelize the funds through appropriate agencies
- Tracking fund utilization and effectiveness of programs

## **7.1.3.2. Public Private Partnership model to undertake a specific skill development initiative**

The objective is to promote public private partnership to deliver specific skill development initiatives. The pre-requisite is that the Identified training programme for PPP should have adequate employment generation potential on completion of training programme, there should be a clearly defined service delivery requirement (Performance Targets) in terms of input and output, and there should be a review and monitoring structure.

**Focus:**

The PPP model can be used for training students in the area of soft skills improvement like communication and inter-personal skills, Generic IT and computer programming skills. The large scale PPP initiative would help in reducing the overall cost of training, streamlining the training delivery and ensures consistent training quality.

**Figure 60 Public Private Partnership in Training Delivery****Table 44 Public Private Partnership in Training Delivery**

Government	<ul style="list-style-type: none"> <li>• Provides overall policy framework for training</li> <li>• Plays a regulatory role</li> <li>• Provides necessary incentives and ensure that training meets required pre-set service delivery options</li> <li>• Monitoring and review</li> </ul>
Industry	<ul style="list-style-type: none"> <li>• Setting standards and reviewing industry body of knowledge</li> <li>• Provide feedback on training quality</li> </ul>
Training Providers	<ul style="list-style-type: none"> <li>• Course content preparation based on industry feedback</li> <li>• Administration of training</li> <li>• Assessment and certification through third-party. Assistance in employment</li> </ul>

**Table 45 Public Private Partnership in skills development - A Case Study**

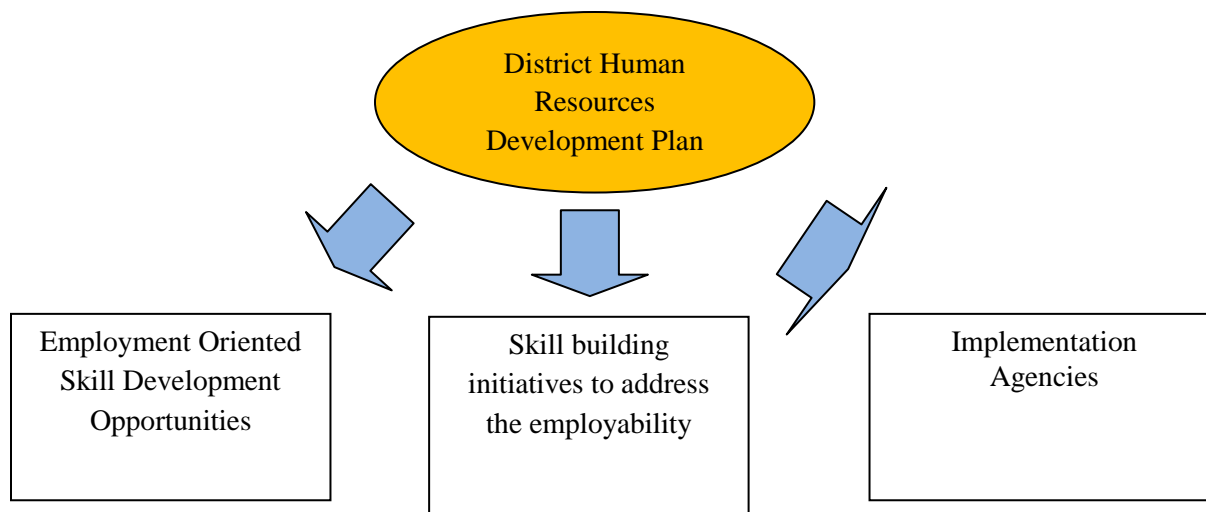
- A leading IT major is already working with education ministries across the Middle East to roll out the Partners in Learning initiative.
- This aims to train teachers and students to achieve their fullest potential by providing comprehensive IT skills.
- Aims to provide locally tailored training for teachers on IT integration into curriculum and learning, and greater access to the latest computer technologies.

**Table 46 Implementation of Public Private Partnership in skills development**

#	Stage	Activities	Responsibility
1	Identification of PPP opportunities	<ul style="list-style-type: none"> <li>• Identify scalable training opportunities</li> <li>• Identify tangible service level parameters</li> </ul>	<ul style="list-style-type: none"> <li>• Higher Education Department</li> </ul>
2	Identification of service providers: - Training - Assessment and Certification	<ul style="list-style-type: none"> <li>• Tendering and selection</li> </ul>	<ul style="list-style-type: none"> <li>• Labour &amp; Employment</li> </ul>
3	Review and Monitoring	<ul style="list-style-type: none"> <li>• Monitoring performance against service performance</li> </ul>	<ul style="list-style-type: none"> <li>• Labour &amp; Employment</li> </ul>

## 7.2. District human resources development plan

The focus of district human resources development plan is to identify key growth drivers, suggest skill development interventions and identify implementation agencies to drive the skill development initiatives.



### 7.2.1. District human resources development plan - Bilaspur

Based on the existing socio-economic profile of the district and availability of resources, we have identified following opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. Transportation
2. Floriculture
3. Hydro power
4. Tourism and hospitality industry

To meet the human resource requirements of these industries, following skill development initiatives are to be taken in joint partnership with concerned departments, private players and industry associations.

### ***Transportation***

Bilaspur is the gateway to the other interior districts such as Hamirpur, Mandi, Kangra and Chamba. In the absence of any major railhead in the state, most of the products are transported by road. The district has two transport unions with a total fleet of about 8500 trucks. However the increased industrial activity has put pressure on increasing the fleet, but lack of trained commercial drivers has resulted in stagnation in the sector. Also, the state recognized driving training college in Mandi does not have adequate infrastructure to meet the total demand. Apart from drivers, there is a need for skilled mechanics for heavy commercial vehicles and spare parts shops. Thus, in order to make Bilaspur a transport hub for other districts of the state, following initiatives should be taken:

- Opening up of a drivers training institute in Bilaspur
- Increase the intake for motor vehicle mechanic in ITI Bilaspur
- Introduction of Motor driving and Heavy Equipment Operator Training in ITI Bilaspur
- Development of auto spare parts retailing in Bilaspur

The Government of Himachal Pradesh should tie-up with leading commercial vehicle OEM to establish a motor driving training in Bilaspur. Few companies such as TATA Motors, Ashok Leyland are looking for similar opportunities. The Government can make available infrastructure in the form of land to OEM's for setting up the institute and the training course should be self financed. Many of these companies are providing employment to the students after imparting requisite training. Apart from this, there is shortage of helpers in Bilaspur and most of these jobs are performed by the truck driver himself. Thus, short-term courses in drivers assistance programme can also be started. There is a need to develop repair and maintenance infrastructure in the district to ensure periodic repair and maintenance of the large fleet for which the intake for motor vehicle mechanic needs to be increased in the district. In addition, we propose starting of auto spare parts cluster in Bilaspur to provide support to transportation hub.

### ***Hydro Power***

Sutlej river flowing through the district is a potential source of hydel power generation. NTPC is constructing a power plant at KolDam which is also providing opportunities for employment in construction sector. Further, the man made reservoirs resulting out of dam construction can be utilised to

promote Bilaspur as a stop-over tourist destination amongst Kangra- Kullu bound travellers for adventure sports.

Following skill development initiatives can be taken up to encash the above opportunities:

- Introduction of courses under MES particularly aimed at hydro power technicians / operators
- Diploma Engineering in Power to be started in Government polytechnic
- Supervisor / Operators Training for Hydro and Power Systems can be started under direct certification by NTPI / PMI who offer such training to fresh diploma engineers

These initiatives have to be driven by Directorate of Technical Education and HP State Electricity Board as it is the nodal agency for allocation of power projects to private players. NTPI offers short term specialised courses for duration ranging from 30 weeks to 52 weeks for training the personnel for power sector. Based on the course curriculum of such programmes and relevance to the hydro power sector, state can initiate an institute on similar lines in the state to train the diploma engineers from electronics, instrumentation and electrical stream for operator level jobs in power plants. PMI (Noida) is another institute that conducts short duration courses in hydro plant operations which can be co-operated to develop certain courses for running under MES scheme for training technicians and maintenance staff for plants.

The construction phase of hydro power plants require large scale employment of people with basic knowledge of light tools and equipments for which an existing construction company can be tied-up for providing basic training to local people registered in employment exchange. The basic skills to be imparted include: mason, plumber, drilling, concreting, industrial wiring, erection of equipments etc.

- Instructors and course curriculum to be addressed by Private Player like L& T, who undertakes the training responsibility.
- This has to be initiated by Labour & Employment in close co-ordination with Public Works Department to identify and review the trades to be offered and course curriculum.



### ***Tourism and Hospitality***

Bilaspur, though currently, has limited tourism development, the same can be further developed by developing the infrastructure for water sports at Gobind Sagar Lake. The Department of Tourism has to take a lead in developing the tourism in the district which would require attracting private parties for setting up good hospitality infrastructure along with water sports activities. To meet the manpower requirement for tourism industry for Bilaspur district, the following initiatives can be undertaken:

- IATA / UFTAA certification in ticketing, tour planning and pricing for school drop-outs after class X
- Increase the intake of students at Regional Water Sports Centre in Kangra district to satisfy the demand for professionals / instructors for adventure sports within the state as same infrastructure facility should be put to better use

This effort has to be co-ordinated by Department of Tourism through Bilaspur District Directorate wherein the Department of Tourism can aggressively promote Bilaspur as an adventure sports destination.

### ***Agro-based***

Bilaspur, in recent past has seen growth of greenhouses / poly-houses which provide employment to large number of households. The growth of this opportunity is being impacted by certain factors such as lack of marketing support, technical know-how, awareness about financial assistance schemes of the state government. District Directorate Horticulture through its extension officer is conducting short duration camps and awareness sessions. This area should be given more thrust through following initiatives:

- Short term training courses to be organised in floriculture and horticulture activities being carried out in green-houses by District Directorate of Horticulture in collaboration with Y S Parmar University, Solan.
- Weekly awareness and sensitisation camps in villages through extension officers of Horticulture department.

- Setting up a marketing agency under the aegis of Department of Horticulture. This marketing agency would co-ordinate with other district in promoting growth of greenhouses products.

However, to give further boost to this initiative which is currently run on a small scale in the district, the Directorate of Horticulture should look for opportunities to tie up with a large national or multinational player involved in the trading of flowers. The Department in collaboration with these private players can form a joint marketing agency for procuring these products from growers in Bilaspur and supplying them in the national and international markets.

### *Dairy farming*

Bilaspur has a per capita milk availability of 379 gms<sup>9</sup> per day which is quite low in comparison to neighbouring states such as Punjab with an average of 943 gms per day. Hence, most of the excess demand of milk is met by supplies from Punjab. Bilaspur has witnessed a drop of 11% in milk production over 2004-05 and has dropped to 10<sup>th</sup> place in 12 districts. Hence, animal husbandry needs to be promoted at the district level as a source of additional income as well as self employment in addition to meeting the nutritional requirement of the district. The district has a total household base of about 65,750. Additional cattle requirement is estimated to be approximately 96,670 assuming a per capita milk availability of 550 gms. Assuming setup of units with 10 animals per unit, employment can be generated for 9667 households.

## **7.2.2. District Human Resources Development Plan – Chamba**

Based on the existing socio-economic profile of the district and availability of resources, we have identified following opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. Hydro power
2. IT/ITES
3. Floriculture
4. Dairy farming
5. Horticulture

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<sup>9</sup> Source: Directorate, Animal Husbandry Department, Himachal Pradesh

### ***Hydro power***

The terrain of the district is suitable for setting up of hydroelectric plants which has been recognised and new projects have been announced on the river Ravi. Keeping the future demand for skilled manpower in mind, the following steps are recommended:

1. Collaboration of NHPC with ITI and Govt Polytechnic to train local population in semi-skilled jobs such as operation of earth moving equipments and heavy machinery. Chamera-II project has initiated similar training program with ITI Chamba but the scope and the involvement of the local population needs to be increased.
2. New courses to be introduced at ITI Chamba in the area of hydel power generation such as blasting, concreting and earth moving equipment.

### ***IT/ITES***

The government has proposed to set-up an IT park at Dalhousie. However, the district is severely under skilled in terms of manpower. The following steps are recommended:

- Introduction of computer science at Govt Polytechnic College, Chamba
- Introduction of basic computer literacy, communication and personality improvement courses at Govt Degree College, Chamba so that students can be imparted skills required in BPO companies.

### ***Tourism***

Chamba district has a lot of tourist potential though it currently receives only 6.3% of the total tourist arrivals in the state. The following steps are recommended to attract more tourists:

- Set up a marketing agency to promote handicraft of Chamba (products such as Chamba Chappals, handkerchiefs) and metal and wood craft. Preliminary research has indicated a sizeable market for these products in outside markets within the country and abroad but the production as well as sales are suffering due to lack of market access. The marketing agency's main function would be to showcase traditional products at market fairs in bigger cities, interact with customers and provide feedback to the craftsmen about changing customer preferences. Increased sales of

handicrafts and metal crafts would also attract more participation from the local population which is slowly getting disenchanted presently.

- Set up an extension branch of the Institute of Hotel Management, Kufri to impart professional courses in tourism.
- Set up a Regional Mountaineering Centre similar to Kangra to impart training regarding adventure sports. Chamba district offers a lot of avenues for trekking, camping, rock climbing but all round development of these activities requires professional assistance.

### ***Floriculture***

Floriculture has registered strong growth over the past few years and turnover for the year 2007 has almost touched Rs 6 crore. Teesa valley and Churah valley are the main centres of floriculture. Further short term training courses on aromatic flowers such as Lavender, Lavendine and Geranium, methods of growing, precautions to be taken as well as capital subsidies / incentives should be used to encourage more farmers to indulge in floriculture. Small scale industrial unit can be setup for extraction of oil from flowers since presently; farmers are only involved in production. Oil extraction and marketing would lead to value addition and more revenues, thereby attracting more people in the occupation.

### ***Dairy Farming***

Chamba has a higher per capita milk availability compared to other districts due to a high population of cattle. Also, animal husbandry has traditionally been practiced for a long time and natural environment is quite favourable for milk production. Further, the district has the rich permanent pastures and graze lands available across the state. Dairy farming can be provided renewed thrust in the district so that the excess production can be used to meet demands of neighbouring districts in the state.

### ***Horticulture***

This has substantial potential in the district as the climate conditions are suitable for fruit production. Salooni block is suitable for growing of vegetable crops. The Horticulture Technology Mission provides subsidies for setting up of medium technology and high technology greenhouses. The incentives offered under this scheme combined with training in the specific areas of horticulture can help generate employment opportunities.

### **7.2.3. District Human Resources Development Plan – Hamirpur**

Based on the existing socio-economic profile of the district and availability of resources, we have identified following opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. Dairy and Poultry farming
2. Event-based tourism
3. Agro processing
4. Poly-houses or Green Houses

#### ***Dairy and Poultry Farming***

Hamirpur has low milk production and more than 50% of the local demand is met through supplies from Punjab. Though dairy farming can be given only limited thrust in the district since the small geographical area leads to lack of large permanent pastures and grazing land, the government should promote the same among local population with small farm holdings which can be developed into feeding grounds for cattle. Apart from this, the government should promote poultry farming in the district which does not suffer from these constraints.

#### ***Tourism***

Though the district offers limited opportunity in tourism sector, the historical fort of Sujapur Tihra can be promoted under event – based marketing around annual festival of Holi.

#### ***Agro processing***

Setting up of Maize processing plants for production of starch and/or bio-fuels is another area which can be explored and requisite training and financial assistance can be provided to individual in setting up these plants. This would also require captive power plants which can be setup as small hydro projects on Beas and Satluj river and generate large scale employment for local people. Similarly, fruit processing units and pinestry for foam can also be promoted. To support these opportunities, we propose starting of vocational courses in district ITI to develop technical skills in related processes.

### ***Poly-houses***

The small and fragmented land holdings in the district offer immense potential for development of poly-houses, which has not been promoted well in the district. The cost of setting up poly-houses is estimated at about Rs. 1 lakh per sq.mt of which about 33% is re-imbursed by Department of Horticulture by way of capital subsidies. District Horticulture Office also organizes one-day orientation camps at block / panchayat level to inform local people about sources and quality of seeds, fertilizers and equipments to be used. However, lack of formal training on harvest and post harvest practices is hampering the development of this sector. Formal vocational training in terms of pre and post harvest farm practices and regular refresher courses in crops to be produces, seeds and manures to be used will go a long way in accelerating the popularity of this opportunity among local population.

## **7.2.4. District Human Resources Development Plan – Kangra**

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. Tourism
2. Dairy farming
3. IT/ITES
4. Financial Services

### ***Tourism***

- HPTDC to renew focus on promoting tourism in Kangra district. The promotion should also include the opportunities in adventure sports apart from leisure tourism and religious tourism.
  - The biggest opportunities in Kangra district are hang gliding and para gliding. The department should encourage competitions and gradually increase it in scale and participation.
  - The department should intensify restoration and maintenance activities at Kangra Fort to promote weekend tourism.

- HPTDC to aggressively promote Maharana Pratap Sagar reservoir as a destination for water sports such as boating, kayaking, water skiing, bird watching and fishing. For the purpose, HPTDC should organise competitions by inviting professional athletes from across the world similar to the World Paragliding competition which is organized at Dharamsala.
- Increase intake at Regional Mountaineering Centre, Dharamsala to induct more professional trekkers, guides in the tourism sector in order to provide a more enriching experience to the customers. HPTDC to also make it mandatory for all guides to be professionally trained at the Regional Mountaineering Centre.

### ***Dairy farming***

The Animal Husbandry department should conduct ground level training programs to educate the local population about dairy farming and provide technical support in the form of information about better feed, better cattle management. Further, the department should also encourage formation of local milk co-operatives. This would lead to better collection of milk and milk products and enable the producers to obtain a better price for their produce. This requires training local people in milk co-operatives and collection process. Also, the Government should encourage entrepreneurs to set-up central dairy plant.

### ***IT/ITES***

IT/ITES industry to be promoted in the district by setting up IT park. The district has potential to attract BPO sector as well as medium sized IT companies involved in software engineering. The district can also source skilled manpower from Punjab due to its proximity with the state.

### ***Financial services***

Dept. of Education to replicate add-on courses introduced at Govt Degree College, Dharamsala across other colleges to impart students with professional skills in the fields of banking, insurance, risk management, e-commerce and asset management. These students can then be absorbed in the service industry which has potential for significant growth in the future.

## 7.2.5. District Human Resources Development Plan – Shimla

The growth drivers for Shimla district have been identified as the tourism and hospitality industry, agro-based activities, IT / ITES companies and light engineering industries. To meet the human resource requirements of these industries, certain initiatives are to be taken in joint partnership with concerned departments, private players and industry associations. IMaCS has identified the key departments to be involved with each of the specific initiative in each industry, the courses to be started and private parties to be brought in for imparting these courses.

### *Information Technology/ Media / Journalism*

Information Technology/ Media / Journalism can be developed very well in Shimla owing to high-quality English speaking student community in the various government and private institutes. In order to realise the long term potential of this sector the following action points are required:

- Compulsory inclusion of computer education in government schools for XI and XII students with a basic functioning knowledge of operating systems
- Computerisation of government colleges and introduction of computer training in specific BPO processes for different courses
  - *Bachelor of Commerce*: Revenue Accounting and MIS, Insurance Claims Processing, Tele-marketing for financial products
  - *Bachelor of Science*: Medical Transcription
  - *Bachelor of Arts*: Customer Support for credit card, telecom services, consumer durable
  - *Bachelor of visual communications*
  - *Bachelor of Science*: Animation, Media etc.,
  - *Bachelor of Arts*: Journalism

These initiatives have to be driven by Directorate of Education and Department of Information Technology. Since, the government colleges' faces shortage of staff, the private player offering globally recognized certification courses to be brought in. Few of the private players who can be approached for



offering these certification courses which are well-recognised in the industry. Hero Mindmine is one such prominent name. Many ITES companies are keen to start their own training centres in Tier II and Tier III cities for in-house recruitment and thus can be approached through NASSCOM.

- Directorate of Education / Department of IT to invest in computer labs and voice training labs in the colleges. The infrastructure need not be developed in all colleges but at few colleges which can be shared among different colleges.
- Instructors and course curriculum to be addressed by private player who undertakes the training responsibility.
- This has to be started as a self-financed course with training fees to be charged from the students enrolling for these courses.

### ***Tourism and Hospitality***

Shimla offers a lot of scope for employment in hospitality and tourism industry. The district currently has primarily stand-alone hotels but can attract hotel chains with presence across the state. This shall ensure employment opportunity for local population. The specific initiatives need to be taken to generate employment are:

- IATA / UFTAA certification in ticketing, tour planning and pricing for school drop-outs after class X
- Food craft training in cooking, baking and bartending after class XII to be started under MES certification in collaboration with leading hotel chain / private players
- Craftsmen Food Production and Steward, one of the recognised trades under NCVT can be started in ITI

This effort has to be co-ordinated by Department of Tourism through Shimla District Directorate. Apart from one institute at Kufri, lot of private players are offering training under MES in food technology and catering. There are few players such as Oberoi Centre of Learning & Development, Banarsidas Chandiwala Institute of Hotel Management & Catering Technology offering similar courses in elsewhere. Efforts should be made to attract these players to set up their training centres with enough capacity in the district. The government can look into providing land on concessional terms and other

infrastructural support. Directorate of Technical education to co-ordinate the start of courses in ITI for Craftsman Food Production and Steward trades.

### *Agro-based*

Shimla has high production of horticulture produce and is being considered by leading retail chains as a procurement hub for their retail ventures. This opportunity can be capitalised upon by offering certain certification courses which are recognised under NCVT but are not currently being taught in ITI.

- Preservation of Fruits and Vegetables, Refrigeration and air-conditioning mechanic with focus on HVAC technology can be initiated in ITI

This effort has to be co-ordinated by Directorate of Technical Education. Apart from these courses in agro-procurement, Department of Horticulture can initiate training session on production techniques and post harvest practices. The yield per hectare of apple production is decreasing which requires significant effort on training the locals on best practices. These short term training sessions can be organized at district level by District Directorate Horticulture in collaboration with Y S Parmar University, Solan. In addition, we propose setting-up of **Centre for Retail Management of agro products** in collaboration with retail companies like Reliance, Adani and RPG etc. The centre would provide necessary end to end training in the area of agro products retailing.

### *Light Engineering*

Shimla has few light engineering industries situated in the Shoghi industrial area. The area has developed good civic and social infrastructure but does not have any ITI and most of the industries have to rely on other ITI in Shimla district. Another issue faced by ITI in Shimla is high concentration of non-engineering trades. The number of seats available in engineering trades are very limited. Based on our interactions with local industry, following trades can be started in ITI under NCVT:

- Commissioning of ITI in Shoghi itself with focus on engineering trades such as Electrician, Wireman, Sheet Metal Worker, Welder, Plumber
- Increase the intake for Machinist, Refrigeration and Air-conditioning mechanic, electronics mechanic in other ITI in the district

This effort has to be co-ordinated by Directorate of Technical Education. The commissioning of new ITI in Shoghi district has to be supported by local entrepreneurs who should be made responsible for providing training to the students.

### **7.2.6. District Human Resources Development Plan – Sirmaur**

The growth drivers for Sirmaur are considered to be tourism and hospitality, textiles, pharmaceutical, and light engineering industries. We propose following initiatives to address the human resources and skills requirement.

#### ***Textiles***

The district faces a huge shortage of skilled people for various job responsibilities in spinning process. Development of textile industry with integration of weaving and garmenting operations would require more diverse skill sets which can be initiated in technical training institutes in the district:

- Maintenance courses for spinning and weaving machines as well as captive power plants to be introduced for Fitters in ITI
- Fashion Technology trade to be started under NNCVT in ITI in the district
- Weaving courses with specific focus on weaving preparatory activities to be started under MES
- Textile Chemistry courses to be started in Polytechnic / Private Engineering Colleges, quality techniques and time and motion studies to be included in engineering courses

These initiatives have to be driven by Directorate of Technical Education. The course curriculum for weaving trades and quality techniques subject to be decided in joint discussion with the industry association.

#### ***Tourism and Hospitality***

The district is primarily a religious destination being frequented primarily by low spending tourists. The rapid pace of industrialization has led to the establishment of few stand-alone hotels but no established hotel chain is currently operating in the district and is not likely to establish itself in near future too. The specific initiatives that need to be taken to generate employment are:

- IATA / UFTAA certification in ticketing, tour planning and pricing for school drop-outs after class X by Department of Tourism
- Craftsmen Food Production and Steward, one of the recognised trades under NCVT can be started in ITI
- Food Technology to be introduced in few ITI in the district

This effort has to be co-ordinated by Department of Tourism through Sirmaur District Directorate. Directorate of Technical education to co-ordinate the start of courses in ITI for Craftsman Food Production and Steward trades. Though few courses in hospitality are being run by private ITI under MES, but inadequate infrastructure has contributed to the poor quality of students. The quality of new trades in hospitality has to be closely monitored by Directorate of Technical Education.

### ***Light Engineering***

Sirmaur has large number of light and medium engineering industries and offer potential for moving up the value chain. However the issues faced is limited number of technical people to meet the local industry needs. There is a need to increase the intake of the students in current trades and start few other new trades:

- Commissioning new engineering trades under NCVT such as Mechanic Electrician, Wireman, Sheet Metal Worker, Refrigeration and Air-conditioning Mechanic, Auto Electrical and Electronics
- Increase the intake for existing courses such as fitter, turner, Plastic Processing Operator in the existing ITI
- Certain course level changes to be implemented such as training on CNC machines, Arc and Submerged welding for Welders, CAD/CAM for electronics and mechanical trades
- Quality techniques to be made an integral part of the engineering degree / diploma courses across all specialization.

This effort has to be initiated by Directorate of Technical Education in collaboration with local industry. There is a need to continually monitor the quality and course curriculum of the trade for which Industry Association to be included.

### ***Pharmaceutical & Chemical Industry***

Sirmaur has large number of pharmaceutical and chemical companies. There are no specialized trades offered in ITI and engineering institutes directed towards meeting the specific skill requirements of this industry. Based on our interactions with local industry, following new courses can be started in various technical institutes in the district:

- Maintenance and Instrument Mechanic for Chemical Plant, Laboratory Assistant, Refrigeration and Air-conditioning Mechanic for pharma and chemical companies
- Diploma in Pharmacy to be started at Government Polytechnic, Nahan
- Increase the intake for plastic processing operators which is currently offered in the district

This effort has to be co-ordinated by Directorate of Technical Education. Apart from this, certain basic short duration courses should be initiated in partnership with leading pharma companies to prepare people for taking up jobs at various level of the pharma value chain. Swift Fundamental Research and Education Society, an arm of Ind-Swift Limited, is in the processes of setting up a training institute for training people in basic pharma operation to technical operators for pharmaceutical process. The State Government should make efforts to have such training institutes being started in the district by providing certain concessions to private players in terms of land availability.

### **7.2.7. District Human Resources Development Plan – Solan**

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

1. Tourism
2. IT/ITES
3. Pharmaceuticals
4. Light Engineering
5. Financial Services

***Tourism:***



Solan can be developed as entertainment hub aimed at transit tourist travelling by road from Delhi and Chandigarh to Shimla. The towns of Chail and Kasauli also need to be promoted more aggressively as tourist destinations. This would directly lead to an increase in demand for tourist guides, taxi drivers as well as professionals in hospitality. Kasauli, a small town with a colonial ambience, can be promoted as a leisure destination for naturopathy with scores of little gardens and orchards, serene atmosphere and quiet environment. Chail has the world's highest cricket pitch and a polo ground but lacks hospitality infrastructure which can be improved to promote it as a stand-alone destination among sport enthusiasts.

### ***Information Technology***

Industry feedback has indicated that the graduates do not possess the requisite communication skills as well as functional knowledge to work in BPO companies. We propose following initiatives to address skill gaps in IT/ITES areas:

- Introduction of following courses as part of regular courses:
  - ***Bachelor of Commerce***: Revenue Accounting, Insurance Claims Processing, Tele-marketing for financial products
  - ***Bachelor of Science***: Medical Transcription
  - ***Bachelor of Arts***: Customer Support for credit card, telecom services, consumer durable
- Directorate of Education / Department of IT to invest in computer labs and voice training labs in the colleges.

### ***Pharmaceutical***

Pharmaceutical industry is an important source of income and employment in the district. However, most of the large industries are engaged in formulation manufacturing with limited focus on research and development. Setting up of a research institute would encourage pharmaceutical industry to move up the value chain from formulation to new drug discovery. In this context, we propose setting-up of Centre for Excellence (CoE) in the area of biotechnology and bioinformatics in Solan. The CoE centre would act as a training centre for supply of highly skilled human resources for pharmaceutical companies.

### ***Light Engineering***

The district has a fairly large number of industries present in light engineering sector. However, most of the companies are involved only in manufacturing which limits employment opportunities as well as expansion plans. Following steps are recommended to encourage industries to move up the value chain:

- Setting-up of Skill Development Centre for providing advisory support to local light engineering companies and train local students in best practices in light engineering industry.
- Invest in upgradation of ITI Solan and Govt Polytechnic College Solan to modern machinery such as Modern welding techniques, CNC machines.
- Emphasise faculty training on the new machines before they are inducted into the institute. To highlight the importance of training, ITI Shahpur in Kangra possesses a CNC machine but lack of trained faculty has led to non-usage of the equipment.
- Advise engineering colleges in the district to invest in setting up of computer labs in colleges with focus on training students on Computer Aided Design and Computer Aided Manufacturing.
- Promote manufacturing of printed circuit boards, electrical components such as capacitors, transistors, telecom equipment manufacturers, low capacity AC and DC motors

### ***Financial Services***

Service industry should witness growth in the district due to increased industrial activity. As a result, we propose introduction of banking and financial courses as part of regular degree courses.

## 7.2.8. District Human Resources Development Plan – Una

Una shares border with Punjab and has relatively flat topography. The area can be developed to attract industries in the sectors of automobile and ancillary units, agro based industries such as biscuits, sugar and starch production, light engineering units and textile units.

### **Engineering**

Una has a lot of companies engaged in a variety of light engineering sectors such as manufacturing of LPG cylinders, Mild steel bars, Batteries and Inverters etc. These companies essentially require semi-skilled and unskilled workers in large quantities. Discussion with the industries has indicated that the current skill levels in the working population are not upto the desired levels as students lack in practical knowledge about machinery. In this context, we propose setting-up of Skill Development Centre (SDC) in Una catering to training needs of engineering companies. In addition, we propose following initiatives to strengthen the technical education in the district.

- a. New trades to be introduced in ITI Una for Motor mechanic, Automobile Engineering, Electronics Mechanic.
- b. Introduce automobile engineering course at Govt. Polytechnic College,
- c. Una should be promoted to as automobile education hub of the state by encouraging automobile as well as ancillary companies to undertake Research and Development activities apart from manufacturing.
- d. HPIDB to promote setting up of hardware park to attract companies in manufacturing of electronics and consumer goods such as Printed Circuit Boards, Telecom equipments, Monitors, Cathode Ray tubes, Television, Refrigerator, Washing Machines, CD and DVD players.

### *Dairy farming*





Una has a per capita availability of milk of 395<sup>10</sup> gms which below the average per capita for Himachal Pradesh. The total no. of dairy animals in the district is 181988 which need to be increased through promotion of dairy farming to bridge the gap in supply and demand. Assuming average per capita consumption of 550 gms, the district needs an additional 71413 dairy animals at current productivity levels. For a unit size of 10 dairy animals, 7141 households can be included for dairy farming.

### *Tourism*

The district has few attractions for religious travellers such as Dera Baba Bharbhag Singh and Chintpurni Temple. These places are frequented by thousands of devotees every year. However lack of hospitality infrastructure deter many people from visiting these places. Further, event based marketing during festival season can help improve the tourist inflow to Una.

## **7.2.9. District Human Resources Development Plan – Lahaul & Spiti**

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

**1. Agriculture** – See buckthorn is an important natural resource. The plant is able to withstand extreme weather conditions as well as adapt to cold deserts. The plant has numerous applications in medicine, food, cosmetic products etc. We propose following set of recommendations to take advantage of agriculture opportunities for local employment

1. The area under cultivation needs to be increased with Department of Agriculture providing technical inputs in terms of seeds, information on sowing, cultivation and harvesting practices and provision of incentives in terms of subsidies.
2. Promotion of usage of glasshouses and polyhouses should also be undertaken to facilitate cultivation of crops despite harsh weather conditions.

**2. Tourism** – The district offers numerous opportunities for adventure and religious tourism. The rugged terrain can be used to promote activities such as trekking, mountaineering, rock climbing and mountain

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<sup>10</sup> Directorate, Department of Animal Husbandry, Himachal Pradesh

biking. Further, the district presents tremendous opportunities for promoting Buddhist tourism as lot of monasteries and Gompas are present in Lahaul and Spiti valleys.

Keylong in Lahaul valley lies on the Manali-Leh route and should be promoted as an important way-side tourism with avenues for adventure and religious tourism.

### **7.2.10. District Human Resources Development Plan – Kinnaur**

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

**1. Hydel power** – The district has vast potential in hydro power generation with the Sutlej basin being the biggest source of hydropower in Himachal Pradesh. Various projects have already been initiated and more are in pipeline for hydel power generation. Amongst the projects which have already begun, the employers have faced problems in recruiting the appropriately skilled local manpower and hence, most of the employees, especially at lower level belong to other states.

Hydel power has been recognized as an opportunity throughout the district and hence, training of local manpower in short-term courses such as blasting, drilling, heavy earth moving machinery, concreting etc.

**2. Tourism** – The district offers tremendous scope for adventure sports such as camping, trekking, mountaineering and rock climbing. Skiing as an avenue can also be explored for development. The district needs to be promoted aggressively by Dept. of Tourism, Himachal Pradesh as presently there is not enough information or brand recall of the various destinations amongst tourists, domestic as well as foreign.

**3. Handloom** – Kinnaur has a strong presence of traditional handlooms and Kinnauri caps are quite famous within the state. However, products such as Kinnaur caps and shawls need to be marketed aggressively outside the state in other states in North and North East India. This would provide an alternate source of employment to the local population during winter months where industrial activity/other occupation become difficult due to extreme cold.

### **7.2.11. District Human Resources Development Plan – Kullu**

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

**1. Tourism:** Kullu district is very popular amongst domestic and foreign tourists and offers options for leisure as well as adventure tourism. Kullu received approximately 24.6% of the total tourist arrival in the state, next only to Shimla. However, tourism as an industry is still not structured and various potential areas such as rafting, para gliding, skiing etc are underutilized. Further, the district administration is only selectively allowing new hotel properties to come up to preserve the natural beauty of the area. Hence, adventure sports offer a unique opportunity to provide value addition to tourists and hence needs to be promoted aggressively. The district has the required natural endowments but lack of properly trained manpower has resulted in under development of these opportunities. Further, WHMI offers courses in all adventure sports except hang gliding and para gliding due to lack of trained faculty.

**2. Agro Processing and Agri-procurement:** The district is a fairly large producer of apples and during peak season, surplus apple is sold at outside markets at fairly low prices. Hence, processing of agro products can be encouraged in the district for value addition and better price realization for the apple producers. Similarly, the district offers scope for setting up of industries in the field of Ayurvedic products.

**3. Handlooms:** Kullu handlooms are famous all across the country and abroad for their fine quality and workmanship. However, the various co-operative weaving societies have not been able to bridge the demand – supply gap due to limited workforce. The increased demand is being catered to by cheaper products from neighbouring states. Due to this, the handloom industry is becoming less profitable and lesser manpower is entering into the business. Thus, the industry needs to be incentivized by the government so that more people are encouraged to join the workforce. Also, more aggressive marketing by a centralized agency will make more people aware of the traditional handloom, helping in increasing revenues.

**4. Light engineering:** Setting up of industries in agro-processing and procurement would increase demand for packaging industries. We foresee employment potential in setting up of carton manufacturing industries to cater to demand from Kullu and Lahaul and Spiti districts.

## 7.2.12. District Human Resources Development Plan – Mandi

Based on the existing socio-economic profile of the district and availability of resources, we have identified few opportunities which can be gainfully exploited to provide employment to a wider spectrum of population:

**1. Agro Processing:** The district has substantial agro production but very few companies are presently functioning in agro processing. Opportunities are present in tea processing and packing, spices production and packaging, pickles and starch production. Manufacturing of Apple Cider can be promoted.

**2. Tourism:** Mandi district has a few scenic places such as Nerchowk and other places in Beas valley which can be promoted for Health tourism by setting of Spas, Aromatherapy and Naturotherapy units. Further, the cultivation of herbs and Ayurvedic plants should be encouraged in the district to build up the brand image for Health Tourism.

**3. Financial services:** The sizeable population of the district presents opportunities in the field of financial services such as banking, insurance, asset management, retail which shall increase in demand with economic growth. The large number of unemployed graduates can be absorbed in this industry with domain specific training courses as well as course curriculum interventions.



## Annexure

### 7.3. Annexure 1: List of Contacts (illustrative)

Organisation	Contact Person	Designation
Govt. of HP	B S Nainta	Director, Industries
Govt. of HP	Dr. Anita Rao	Director, Education
Govt. of HP	G S Chauhan	Member Secretary, Parwanoo
Govt. of HP	Tilak Raj Sharma	Member Secretary, Baddi
Torrent Pharmaceuticals Ltd.	Agosh Gopalan	Manager, HR
Purolator India Ltd.	NS Sohal	Plant Manager
	Ritu Jain	Asst. HR Manager
Alliance Formulations	Rajesh Kumar	GM (Operations)
Wing Pharmaceuticals	R P Singh	Asst. Manager Personnel
Indo Asian Fuse Gears Ltd.	M C Goel	HR Manager
Institute of Engineering and Emerging Technologies	R C Behl	Principal

	Prashant Mehta	Placement Officer
Birla Textile Mills	H C Maheshwari	Vice President
Ind Sphinx Precision Ltd	Ashok Swami	HR, Manager
YS Parmar University	Dr. S D Bhardwaj	Dean, Forestry
	Dr. Dalip Modgil	Asst Dir , Placement Officer
Govt. PG College	SP Sharma	Principal
Auro Spinning Mills (Vardhman)	Vijay Arora	Sr. VP
	M Srivastava	HR Manager
ITI, Solan	Er. Shevender Doeger	Principal & Member Secretary
Govt. of HP	B R Varma	Director, Employment cum Labour Commissioner
Govt. College, Paonta Sahib	N K Dhani	Principal
	R K sharma	Vice - Principal
ITI, Paonta Sahib	A K Sharma	Principal
Jaimurthy Industries	Bhupender Pal Saini	Factory Manager
Mahaan Foods Limited	Mr. Sameer Sharma	Personnel Manager

Malwa Cotton Ltd	Kailash Azad	Sr. V P
	Sumeet Shukla	Personnel Manager
Jai Bharat Rolling Mills	Mr Ajit Singh	General Manager
Mankind Pharma	Mr Khanna	General Manager
Pidilite Industries Ltd	Mr Harjeet Rana	Head - HR
Ranbaxy Laboratories Ltd	Mr Ravindra Dhapola	Head - HR
Ruchira Papers	Mr Deepan Garg	Managing Director
Himalya International	Mr. N.K.Upadhyay	Personnel Manager
International Cylinders	N S Chauhan	General Manager
Lime Chemicals	Mr Anil Sharma	Personnel Manager
H M Steels	Mr Sunil Agarwal	General Manager
ITI Nahan	Sunil Kumar	Principal
IITT College	Dr. Sood	Principal
	Mr. Anuj Kansal	Faculty
International Motors	Mr Hoshiar Singh	AGM - HR



	Mr Thomas Abraham	Asst. Manager - HR
Cremica Agro Foods	Mr R K Nag	GM
HIM Steels	Mr N S Thakur	Manager - HR
Deepak Fasteners	Mr Ramesh Madan	GM
Possible Automobiles	Mr Daljit Singh	MD
Swiss Garnier Life Sciences	Mr. K Siva Subramanian	Project Manager
Luminous Power	Mr. Ajay Bharadwaj	Manager - HR
Govt Polytechnic	Mr Sood	HOD - Computer Sciences
Govt Post Degree College	Ms Kusum Bakshi	Principal
ITI Una		Principal
Dept. of Tourism, Shimla	Mr. Jaista	District Tourism Development Officer
Radisson Jass Hotel	Mr Vikash Kapoor	Manager
RKMV College	Ms Meera Walia	Principal
Band Box Travels	Mr Anil	Proprietor
Ambassador Travels	Mr Deepak Sood	Proprietor
India Tours n Travels	Mr Sanjeev Sood	Proprietor
Adani Agrifresh	Mr Pant	General

		Manager
Saraswati.com	Mr. D N Chauhan	Chief Executive
Instablog		
AltwistTechnologies	Amit Maheshwari	Marketing Head
Shivam Industries	Mr. Yashpal	MD
Govt. Polytechnic College	Mr. Joginder Singh	Principal
Jaypee University of Information Technology	Mr. Balbir Singh	Registrar
Green Hills Engineering College	Mr. J S Blaggan	Registrar
	Mr. A K Kaushik	Placement Officer
Govt. of HP	Ashok Rajan	Economic Advisor
Hotel Combermere	Mr. Rana	Manager
Hotel Asia the Dawn	Mr. Thakur	Manager
St. Beeds College	Ms Neelam Bali	Placement co-ordinator
HP University	Mr. Shivraj Singh	Dean Studies
ITI Shimla	Subhash Sharma	Instructor
Govt of HP	B R Verma	Dr Emp. Cum Lab Comm
Govt of HP	Mr. K R Bharti	Director Technical Education
Polytechnic / EC	Mr. R K Sharma	Principal
Govt of HP	Mr Manish Garg	Director, IT

Govt. of HP	Dr. Anita Rao	Director, Education
Govt. of HP	Mr B L Raghav	Jt Secy Urban Development
Govt. of HP	Baldev Singh	Jt Director, Horticulture
Govt. of HP	A R Sankhayan	Town & Country Planning
HPMC	Amit Kashyap	Gen Mgr
HP University	V D Sharma	Registrar
Government PG College	Subhash Gupta	Principal
ACC	P Pandey	Sr Manager - HR
	Sandeep Thankur	Asst. Manager - HR
NTPC Koldam	Anil Verma	Sr Manager (P&S)
Bilaspur District Truck Operators Association (BDTA)	Kuldip Gautam	Secretary
L&T Koldam	Mr.Bhardwaj	Plant Manager
Gammon India Ltd	Mr. Dubey	Site Manager
District Employment Office	Vandana Vaidya	Dist.Employment Officer
District Horticulture Deptt	Rajeshwar Sharma	HDO
District Industries Centre	Dr Chand Sharma	GM
ITI Bilaspur	Mr K C Chadda	Principal
SWCA, Goalthai	Mr Anshul Dhiman	Member Secy

SPS Steel	Mr. P Chakraborty	General Manager
Tidal Labs	Mr. Kulbhushan Sharma	Production Manager
Haute Coffee	Mr J M Lakhani	Partner
District Industries Centre	Mr Prabhat Chaudhary	GM
Regional Employment Exchange		Regional Employment Officer
Govt Degree College		Principal
	Dr N N Sharma	Placement Officer
ITI Shahpur	Mr Bhagwant Singh	Principal
Single Window Clearance Agency	Mr D S Kapoor	Member Secy
Ways Tour and Travel	Mr Jagmohan Gupta	Proprietor
Eagle Heights Trekkers	Mr Ashok	Owner
Distt. Tourism Dept.	Mr Sanjay Sharma	Distt. Tourism Officer
Industrial Area, Nagrota Bagwan	Mr P D Agnihotri	GM
Asia Health Resorts	Mr Brij Mohan	General Manager
Polytechnic College	Mr. S Verma	Principal
Classic Engg	Mr. D.R Sharma	General Manager

Horizon Polymers	Mr Jaspal	Production Manager
Jackson Labs	Mr Varun Samra	Proprietor
CSK Agri University	Mr Tej Pratap Mr P K Sharma	Vice Chancellor Dean - PG
District Industries Centre	Baldev Singh D K Dhyanpuri	General Manager Manager
District Employment Exchange	Yograj Dhiman	District Employment Officer
Khadi and Village Industries Board	Ravi Kant Thakur	District Development Officer
Himachal Scientific Instrument Pvt. Limited	Rajnish Kanwar	MD
Ashoka Steel Industries Limited	Ashok Sharma	Proprietor
Sharma Woodworks Limited	B K Sharma	Proprietor
Directorate Horticulture	R N Sharma	Director Horticulture
National Institute of Technology	I K Bhatt Vinod Kapoor	Director Placement Officer
Government College	S C Sharma	Principal
Government Polytechnic	D K Gautam	Vice Principal
District Industries Centre	Mr T S Negi	General Manager
Directorate of Horticulture		Manager

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ITI Chamba	Mr S. K Gupta	Principal
Govt Degree College	Mr K C Kapoor	Principal
Chamera-II, NHPC	Mr Rajiv Hustu	General Manager
Chamera-III, NHPC	Mr. S Joshi	Senior Incharge
Handi and Handloom Corp.	Mr Girja Kumar	Manager
District Employment Exchange	Ms Sakuntala Devi	Dist. Emp. Officer
Hindustan Construction Company	Mr H S Dhillon	Dy. Project Controller

## 7.4. Annexure 2: Productivity Assumptions

### Light engineering

#### Productivity assumptions for forecast

- ❑ Revenues of existing companies to grow at 7% till 2010 and then at 5%
- ❑ Growth to be driven by new companies establishing factories in the state; revenues expected to increase at 20% till 2010 and then stabilise at 7%
- ❑ Productivity increase assumed at 10% till 2010 and 5% thereafter as industry moves up the value chain from low value activities

#### Rationale

- ❑ Provides good economic climate for producing such goods as abundant power supply and associated support industry
- ❑ New establishments shall witness rapid growth till 2010; pace of growth expected to slow down after that and growth shall come from increased production by already established enterprises

### Pharmaceuticals

- ❑ Revenues of existing companies to grow at 7% till 2010 and then at 5%
- ❑ Growth to be driven by new companies establishing factories in the state; revenues expected to increase at higher rate 2010 and then stabilise at 5%
- ❑ Productivity increase assumed at 3% till 2010 and 2% as scope of innovation is limited

- ❑ State has a significant share of the Pharma Industry with Baddi becoming a pharma hub of the country, significant presence of input suppliers
- ❑ Employment estimates based on approvals obtained by pharma companies and expected year of commissioning

	<b><u>Productivity assumptions for forecast</u></b>	<b><u>Rationale</u></b>
<b>Mineral-based</b>	<ul style="list-style-type: none"> <li>❑ HP accounted for 3% of total Indian capacity in 2002</li> <li>❑ Allocation of new capacities to increase installed capacity in HP, share in all India to remain constant at 3%</li> <li>❑ 1.32 manhour / tonne for production and 1.5 persons for other activities for every employee in production</li> </ul>	<ul style="list-style-type: none"> <li>❑ Chamba and Alsindhi limestone deposits allotted for the setting up of cement plants of 2 million tonnes capacity each, expected to get commissioned over a three year period</li> <li>❑ Geo - technical investigations underway at 67 sites to establish mineral reserves which shall further boost the manpower requirement</li> </ul>
<b>Construction</b>	<ul style="list-style-type: none"> <li>❑ Construction output expected to grow at 15% till 2012 and then at 12% till 2015</li> <li>❑ Productivity for construction workers assumed to be 90% of all-India productivity due to difficult terrain</li> <li>❑ Productivity expected to improve at 1% p.a.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Ultra-mega Power projects, IT Parks and large scale industrialisation to increase the demand for construction</li> <li>❑ 4000 crore investment proposed for urban development over next few years to drive the growth in the sector</li> <li>❑ National construction companies are making a headway to HP which shall involve the use of latest technology and increase productivity gains</li> </ul>



**Tourism & Hospitality**
**Productivity assumptions for forecast**

- ❑ Ministry of tourism estimates that approx 53000 rooms in 2002 shall increase to 77000 in 2010 across categories
- ❑ Industry benchmarks of 1.62 person / room for luxury class, 1.49 person / room for mid-market and 0.63 person / room for others, employment is expected to increase at 4.6% CAGR
- ❑ Results in creation of 3 jobs in support activities for every direct job in hotels
- ❑ Restaurants employment to be 0.4% of all-India employment based on past estimates

**Rationale**

- ❑ Tourist arrival have been growing at 7.8% since 2001 to reach about 7mn domestic and 0.2 mn foreign tourists

**Power**

- ❑ 3072 MW hydro power capacity expected to get commissioned by 2015 based on current allocation
- ❑ 3 operators per MW are assumed for operations and maintenance in hydro power based on industry benchmarks and adjusting for inefficiencies

- ❑ Estimated hydel potential of 20,815 MW (24% of India's potential), out of which 6353 MW harnessed till now
- ❑ 4212 MW new power projects have been allotted / under allotment till August 2007

**IT & ITES****Productivity assumptions for forecast**

- ❑ Commissioning of first phase of IT park in 2010 shall create employment for 5500 people
- ❑ Productivity for ITeS industry assumed to be 60% of all-India productivity as low value add services shall be outsourced initially
- ❑ Share of IT revenues from HP expected to rise as IT park start functioning at full scale

**Rationale**

- IT and ITES are sunrise industries, expected to grow because of continued efforts by government to implement IT at all levels, BPO/ITES training labs set up in 26 colleges and soon be expanded to others
- Govt. plans to set up five IT parks at Wahnaghat, Nalagarh in Solan district, Palampur and Nurpur in Kangra district and Dalhousie in Chamba district
- First IT Park of about 106 acres at Wahnaghat with integrated township is in advanced stages of negotiations and is expected to come up by 2010
- Employment from full scale operations of first IT Park assumed, others would provide a further boost to employment

**Textiles****Productivity assumptions for forecast**

- ❑ Revenues of existing companies to grow at 9.5% till 2010 and then at 5%
- ❑ Growth to be driven by new companies establishing factories in the state; revenues expected to increase at higher rate 2010 and then stabilise at 5%
- ❑ Productivity increase assumed at 4% as production processes are already highly automated

**Rationale**

- ❑ Number of large spinning units are established, potential for further investments
- ❑ Employment estimates based on approvals obtained by textile companies and expected year of commissioning
- ❑ Moving up the value chain and establishment of integrated mills comprising spinning, fabric making and garmenting can create large scale employment opportunities in the state

**Repair Services**

- ❑ Penetration of TV (68%), Radio (53%) and Other Durables (32%) assumed to increase at 4% p.a.
- ❑ Average spend expected to increase at 5% p.a and annual income for durable mechanic ~ to state GSDP
- ❑ Annual spend of vehicle servicing varies across category and labour accounts for approx 30% of the spend; annual income for motor mechanic ~ Rs.50,000
- ❑ CAGR for vehicles: Passenger Car 8%, CV 5%, Auto 4%, 2 Wheeler 3%.

- ❑ Demand for such services to be driven by increase in penetration of consumer durables and vehicles; and rise in per capita spend on repair services

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### 7.5. Annexure 3: Workskills competition – List of skill Categories ( as per Worldskills Shizuoka Prefecture, Japan 2007)

1. Polymechanics / Automation
2. Telecommunication Distribution Technology
3. Manufacturing Team Challenge
4. Mechatronics
5. Mech. Eng. CADD
6. CNC Turning
7. CNC Milling
8. IT/Software Applications
9. Welding
10. Printing
11. Wall & Floor Tiling
12. Autobody Repair
13. Metal Roofing
14. Plumbing
15. Industrial Electronics
16. Web Design

17. Electrical Installations
18. Industrial Control
19. Bricklaying
20. Stonemasonry
21. Confectioner/Pastry Cook
22. Automobile Technology
23. Cooking
24. Restaurant Service
25. Car Painting
26. Landscape Gardening
27. Refrigeration
28. IT PC/Network Support
29. Graphic Design Technology
30. Painting & Decorating
31. Cabinetmaking
32. Joinery
33. Carpentry
34. Jewellery
35. Floristry

36. Ladies/Mens Hairdressing
37. Beauty Therapy
38. Ladies Dressmaking

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