

LABOUR MARKET SURVEY

Analysis of Emerging Needs of Technical Human Resources In the Country

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EXECUTIVE SUMMARY

Human Capital plays an important role to make a country prosper since the prosperity of the country is associated with the productivity of citizens. The productivity of citizens can be enhanced by imparting knowledge and skills in them. The investment in human capital is therefore crucial for development of any nation. According to Pioneer Economist, Gery Baker, general education creates general human capital however, creation of specific human capital is the sector of TVET. Specific in the sense that it is provided as per the special need of particular occupational sector or area. Thus, the productivity of individual TVET graduate is limited within his specialized occupation. To achieve the maximum benefit for TVET, training related employment must be ensured for almost all graduates. The investment in human capital therefore must be dovetailed with the actual need of the country otherwise the large amount of investment in human capital will be useless.

Council for Technical Education and Vocational Training is the apex organization devoted to provide TVET (in a form of specific human capital) as per the need of the country. CTEVT should therefore be aware and updated with the actual need of labour market before making TVET programs operationalized. This study is a part of the same endeavor of making TVET program relevant and reliable.

The purpose of the study was to carry out a labour market analysis to identify the demands of technical human resources at present as well as to speculate the demands for future. The specific objectives of the study were to:

- Identify the emerging demands of lower and middle level technical human resources in the labour market in engineering, health, tourism and agriculture sectors;
- Identify the gaps in the existing human resources so as to better address the employers' needs by enhancing their occupational skills;
- Make projection of such technical human resources both in a long term and short term basis;

Both quantitative and qualitative approaches were adopted for this study. Under the quantitative approach, altogether, 1344 employment units were surveyed selecting 247 from agriculture, 315 from engineering, 398 and 384 respectively from health and hospitality sectors based on the stratified random sampling procedure. Seventy five districts were classified in to 10 analytical domains incorporating the districts of similar geographical and socio-economic characteristics, and 25 districts were selected for the study choosing 1-3 districts from each analytical domain. The sample size of employment units in each district is calculated proportionately based on the size of population. A semi structured survey form was developed for collecting the primary data from these employment units.

Besides the employment unit survey, several key informants were also interviewed from development related ministries, department and district level offices, members of professional associations and trade unions. The trend analysis was made of sectoral growth rate of GDPs. Similarly, sectoral plans, policies and programs were also analyzed to get some signals on the absorptive capacity of the economy. Analysis and discussion was also made separately for the four sectors -Agriculture, Engineering, Health and Hospitality.

Almost 50% of staff of the surveyed employment units were found from technical background and in an average 5.51 staff were found working in one occupations. But, this number is found varied as per the sector, occupation and regional basis. Among the various type of employment units, technical staff are found working in lower proportion in Bank and Financial Sector, whereas this proportion is the highest in NGOs/ INGOs and Education and Training Institutes.

During the last five years, most of the enterprises were found not run satisfactorily despite some banks and financial institutes and I/NGOs. Almost 50% of employment units are found satisfied from their last five years business however, another 50% had some type of reservation. Moreover, the owner of these employment units were also not found optimistic about the future. Although, regular entry and exit of employees is observed in surveyed enterprises in various occupations, negligible employment units were found recruited additional numbers in the last twelve months because of the expansion of their business. Most of the occupations where new staffs were recruited are basically health related occupations such as Staff Nurse, General Medicine, Beautician and so on.

Based on the perceptions of respondents on supply status of workforce, only 16.7% of enterprises realized the scarcity of workforce in their sector however rest of the employment units do not have such realization. Moreover, almost 40% of employment units even think that there is oversupply of technical human resource they used to recruit. The demand of TVET graduates were also found underestimated due to their proficiency level, since the majority of employers were not found fully satisfied by the performance of fresh graduates (without experience).

Agriculture

Agriculture is also emerging as the potential sector. The early sign of mechanization in agricultural practices and shift from traditional agriculture to market agriculture is the indication of the rising absorptive capacity of agriculture sector for basic to higher level technicians. The increasing trend of opening of agro-industries as well as the emerging agro-business such as trout farming, off season vegetables, organic farming, farming of several kinds of livestock (poultry, ostrich, pig) are creating self employment opportunities in informal sector. Since, all of these activities are running informally, the formal employment opportunities are hardly available within this sector. Although, public jobs in agriculture sector becomes saturated, present plan of expansion of agriculture service (Including Livestock) to wider range of beneficiaries creates job opportunities for middle level technicians immediately to almost 3000 number and another 1000 within few years.

Engineering

Presently large demand of skilled workforce in construction related occupation is speculated in the domestic labour market based on various factors analyzed in this study. Scarcity of workforce was already prevailed in the market because of the attraction of foreign employment among youths. Some currently running infrastructure projects such as hydropower, irrigation and road and bridge construction have suffered from crisis of the skilled workforce. The need of new and reconstruction in the post disaster phase has further multiplied the previous need. Some junior level technicians in construction sector such as Welder, Plumber, Carpenter, Scaffolder are also demanded in significant number.

Although, signals about the significant demand of construction related skilled workforce is clearly visible in the labour market, the demand trend of labour market is not encouraging in the last few decades. The continuity of freezing trend of last few years of government capital expenditure has

not been broken up till date. Conducive environment has not been prepared yet for the private sector investment. Thus, several engineering related occupations are highly demanded in the labour market mostly in private and informal sector.

Health Sector

No notable increment in public health institutions has been observed during the last two decades however, expansion of beds and other services saw the remarkable upsurge in that period. Unlike the public sector, both health institutions and health services in private for profit sector witnessed rapid increment during the same period. Because of the diversification and modernization of health technology and services, demand of more specialized courses are emerging instead of general courses of medicine and nursing. These are Orthopedic Assistants, Radiography Assistant, Optical Fitting and Dispensing, Dental Mechanics, Operation Theater (OT) Technicians, Dialysis Technician, and so on. Unlike the new and specialized occupations, the graduates from presently available health courses such as Staff Nurse, General Medicine, Lab Technicians, Auxiliary Nurse Midwifery, Community Medicine Assistant are found saturated in the labour market in present set up of public health service, however the provision of existing government policy to expand and extent free and quality health services to VDC and ward level paves way to create employment opportunities for graduates of these programs in significant number. But, before reaching on any conclusion, it needs to be waited for the proper implementation of the policy.

Hospitality

Employment opportunities in Tourism or hospitality related organizations are mainly available in private and informal sector and very few opportunities are available in formal and public sector. Due to the absence of workplace based training system, employers find hard to get efficient workforce and therefore are interested to hire fresh candidate and train them than recruiting trained graduates.

Unstable political situation of the country is considered as the primary cause for inefficient performance of hospitality sector. The in-flow of tourist during the last decade is not encouraging, however slight upward trend is observed. In the interview with key informants, it is reported that hotel business was shrinking day by day and it is difficult to accommodate the existing employees. The sector is dominant with informal opportunities. Tour and travel sector is also covered by informal sector and demands differ from region to region because tourism activities do not take place in the same manner. Trekking business is another area considered by the study and found out that 90% activities and demand thereby employment opportunities fall in informal sector.

As a conclusion, the survey result depicts that majority employees in the formal sector are from technical background or skilled based but annual increment in employment is negligible. It is unpleasant to conclude that everyone in two enterprises were not performing satisfactorily in last five years. Moreover, no more evidences can be gathered to justify betterment of situation in the future except the ambitious looking targets of public policies and development plans. If these expected outcomes of development plans and policies are to achieve, supply of technical human resources should be increased in significant proportion not only in quantity but also in quality.

The employers are found preferring experienced workers rather than the fresh graduates. This may be because of the dominance of theoretical portion and lack of practical or work based learning approach in the existing training curricula. The curricula of most of occupations were rated appropriate, however, the curricula were not followed properly during the course of curriculum implementation

ACRONYMS AND ABBREVIATION

ADB	Asian Development Bank
AHW	Ayurvedic Health Worker
ANM	Auxiliary Nurse Midwifery
B/CMLT	Bachelor/Certificate in Medical Laboratory Technology
BN	Bachelor of Nursing
BS	Bikram Sambat
CBO	Community Based Organization
CBS	Central Bureau of Statistics
CMA	Community Medicine Assistant
CTEVT	Council for Technical Education and Vocational Training
DDC	District Development Committee
DoLIDAR	Department of Local Infrastructure Development and Agriculture Road
FGD	Focus Group Discussion
FNCSI	Federation of Nepal Cottage and Small Industries
GDP	Gross Domestic Product
GIZ	Gesellschaft für Internationale Zusammenarbeit
GoN	Government of Nepal
GSM	Global System for Mobile Communication
HA	Health Assistant
HAN	Hotel Association of Nepal
HPFN	Hotel Professional Federation of Nepal
HR	Human Resource
HRH	Human Resource for Health
I/NGO	International /Non Governmental Organization
IT	Information Technology
JTA	Junior Technical Assistant
LMIS	Labour Market Information and Analysis
M.Sc.	Master of Science
MDSI	Macro Development Synergies Inc
MoF	Ministry of Finance
MW	Mega Watt
NAC	Nepal Airlines Corporation
NSTB	National Skill Testing Board
PPP	Public Private Partnership
SAM	Social Accounting Matrices
SDC	Swiss Agency for Development and Cooperation
SPSS	Statistical Program for Social Science
TSLC	Technical School Leaving Certificate
TTPs	Technical Training Providers
TVET	Technical and Vocational Education and Training
TYP	Three Years Plan
WHO	World Health Organization

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PART ONE

INTRODUCTORY

1.1 Background

History of Technical Education and Vocational Training came into existence in an unorganized form since the great artists had been flourishing arts and crafts of Pagoda Style from Tibet to many other parts of the world. The organized Vocational Education began based on Gandhian Philosophy in around 1940. Nurse and Health Assistant School was established in 1956. Similarly, Balaju Technical Training Center (Mechanical Training Center) was initiated from 1963. The first training program for Junior Technical Assistants in Agriculture was launched by Technical Training Division of the Department of Cottage Industry in 1956. Moreover, Vocational Education had been introduced in 29 multi-purpose schools together with general education under multi-purpose education program from 1970. Realizing the scope of vocational education and training, government of Nepal initiated it in Vocational High Schools in 80's decade and established TVET structure in a separate wing establishing the Directorate of Technical and Vocational Education. With the successful impacts of such initiatives, Technical Education and Vocational Training Act was brought into picture in 1989 and the secretariat of the TVET sub-sector was established as Council for Technical Education and Vocational Training (CTEVT). The Council for Technical Education and Vocational Training as an apex body of TVET sector in Nepal is responsible for policy formulation, expansion of TVET sector, quality assurance and coordination and is mandated for producing basic to higher level technical human resources as per the needs of the country (GON, 2006¹). Today, the graduates of CTEVT are not only absorbed by domestic market, they are equally in demand in foreign employment. These demands come for graduates of all occupations and programs – diploma, Technical SLC (TSLC) and short term vocational training. Therefore, demands in both domestic and foreign employment have been the matter of major concern for policy makers, planners and managers of TVET Sub-sector.

Technical Education and Training and Vocational Education and Training are widely used nomenclatures, however; clear demarcation among them is absent. With the common practice in Nepal technical and vocational trainings fall under shorter duration with specific skills of a particular occupation and are with terminating nature but can be accumulated together with different modules and can be linked with the classification of skill standards for further certification. Even within the technical and vocational training, there are two different approaches to deal with the training delivery. The courses of very short duration: one or two weeks such as candle making, soap making, instant stick making, pickle making etc which do not demand any prerequisites and extended skills are delivered under the courses of livelihood skills. With little efforts of time and resources, beneficiaries can change their earning level through their small enterprises. But such courses cannot be articulated with the standards set for skill certification. The courses designed with the duration more than 160 hours and less than 1560 hours fall under technical and vocational courses. Such courses demand certain prerequisites, can be linked with other modules and matched with the criteria for skill certification of different levels. Course with more than 1560 hours with fixed criteria and can be articulated for further training and education are defined as technical and vocational education. The livelihood, vocational and Technical School

¹ Government of Nepal (GoN), 2006, The CTEVT Act (Second Amendment - Education and Sports related Some Nepal Act Amendment) Act 2006 (29 Dec 2006 (BS 2063/09/14).

Leaving Certificate level courses fall under basic level courses and courses of proficiency certificate and or diploma level are of middle level courses and the courses of undergraduate and masters' degree level courses fall under the higher level programs.

The TVET programs managed by CTEVT are assumed to be demand based. In the early days, it had only conducted the long term non-academic courses especially in Agriculture, Health and Construction sectors but in a limited number through its trade schools. Gradually, it expanded its activities covering large number of sectors in wider geographical locations. After democracy in 90s, it started to grant affiliation to various private institutes to run both academic (Diploma) as well as non-academic programs (Short Term). While selecting the training programmes, the single criterion that CTEVT should consider is the needs of the market. It is therefore theoretically accepted that gap between supply and demand should reduce to minimize the wastage of resources.

Like any other developing country, unemployment/ underemployment and poverty are the main challenges for Nepalese economy. On one hand, every one out of four Nepali is living below the poverty line (CBS, 2011) with the lowest per capita GDP among the South Asian Countries. On the other hand, massive underutilization of labor force can be observed in Nepalese economy. Although, the officially calculated unemployment rate is not that serious (1.8%) (CBS 2011²), the underemployment rate can be counted as almost 30% if the underutilization rate of labor force is considered. Moreover, as mentioned above more than 450,000 labor force enters annually into the labor market (MoF, 2011). However, majority of them are not gainfully employed due to lack of appropriate skills. As per CTEVT, less than 100,000 short and long term training opportunities are available in the country (CTEVT, 2011³). If the contribution of development projects is removed, the training opportunity is really limited, grossly insufficient to address the new labor market entrants. Therefore, 1500 people leave country each day for foreign employment, of which strong majority are unskilled. While a study based on market signaling study (KC and Pradhan 2010⁴) concluded it to stand at 70%, the World Bank concludes that 75% of such migrants are unskilled.

Lack of skilled human resources is conceived as a main responsible factor for slow process of industrialization (1.6%) and decreasing contribution of manufacturing sector in GDP, which has declined by 2.8 percentage point in the last decade (MoF, 2012). Anecdotes claim that large number of industries in Tarai region has been employing Indian technicians because of unavailability of particular type of skills in Nepalese Workforce. This problem is observed in all sectors of economy. A study carried out by SDC claims that there is big need of properly trained people in sectors such as construction, tourism, mechanical, automobile etc (Pradhan et al 2014⁵).

² CBS 2011, Nepal Living Standard Survey 2010/11, Kathmandu: CBS.

³ CTEVT-A Glimpse, 2011

⁴KC, Anuja, and Pradhan, H., 2010, Analysis of Labor Market Signaling, Unpublished Research Paper, Kathmandu.

⁵ Pradhan, H., Ghimire, GR, Subedi, S, 2014, Report on Analysis of Selected Industry and Service Sectors in Nepal, Lalitpur: Swiss Agency for Development Cooperation.

Therefore, it is necessary to properly assess the need of such workforce and prepare workforce in required quality. Due attention should be paid on demand side of labor market while adjusting the supply side of training. Presently, large number of technical training providers (TTPs) under governmental and non- governmental including private sector are carrying out training programs but basically without understanding the needs of business and industry, the ultimate buyers of the TVET services. Therefore, government together with SDC and EU is planning to introduce employers' laid training projects. CTEVT has further responsibility to assure the quality of these initiatives as well as coordinate such organizations to eliminate duplications.

1.2 Rational of the Study

Employment creation and income generation are the necessary measures to address both issues of the unemployment/underemployment and poverty of a country. In order to address these problems, large number of governmental, non-governmental as well as private organizations have been involving in TEVT programs throughout the country.

The demand side information, rate of employment creation and nature of skills mismatch in the technical field are the primary concerns of TVET sub-sector. Regular updating of such information is essential to ensure smooth operation of labor market information system (LMIS). LMIS is the system that supplies and/or facilitates supply of these data and information to both the TVET system and employers.

In summary, establishment of a dynamic LMIS that is capable of managing demand and supply side data and information, the analysis and dissemination of the results to address the needs of both demand and supply side stakeholders, primarily of business and industry are its two major functions.

1.3 Objectives of the Study

The purpose of the study was to carry out a detailed labour market survey to identify the demands of technical human resources at present as well as to speculate the demands for the future. The specific objectives of the study were to:

- Identify the emerging demands of lower and middle level technical human resources in the labour market in engineering, health, tourism and agriculture sectors;
- Identify the gaps for enhancing skills of the existing human resources so as to better address the employers' needs;
- Make projection of such technical human resources both in a long term and short term basis;

1.4 Literature Review

There are very few studies regarding the labour market survey especially in technical field with quantitative methodologies, however some study reports are available. As reported by some studies, there is scarcity of skilled human resources in several sectors of economy (Pradhan et al 2014) that are supposed to make contribution to the national economy. These studies indicate that

lack of properly trained human resource has been the bottleneck for enhancing productivity. It has also adversely affected expansion of the service sector and commercialization and modernization of the agricultural sector. On the other hand, large number of TVET graduates are assumed unemployed.

Slow process of industrialization, slow rate of expansion of service sectors, lack of commercialization and modernization of agriculture sector and lack of productive investments are the main challenges of Nepalese economy. Presently, the agricultural sector in its current form is not in position to absorb any additional labour force since it has already been overcrowded. Likewise, the service sector is expanding to some extent but this expansion is not sufficient to absorb even a small fraction of new annual entrants of 450,000 in the labour market (MoF, 2012⁶).

The production of human resources should always be compatible with the actual needs of labour market in terms of both required skills and their level of efficiency (quality of human resource). Conduction of labour market assessment on periodic basis and revising the TVET plans and policies accordingly is thus essential to reduce the degree of mismatch between actual needs and supply of labour in the market.

The studies in the past have indicated mismatch between the skills in demand and supply. A study carried out by CTEVT/The British Council has sufficiently presented evidence by the study of agriculture, tourism and mechanical sector (Pradhan et al 2014⁷). The tracer studies have also revealed the low employment status of graduates of TVET programs (Neupane, 2010⁸). The mismatch in these two facts (demands and supply) clearly denotes the prevalence of structural unemployment (mismatch between available skills and actual needs of skills) within the country. These findings underscore the need of detailed labour market assessment thereby providing reliable and relevant labor market data and information to planners and policy makers. Such a report will be very helpful for planning and implementation of appropriate TVET programs.

Although there are various studies in the international arena focused on labor market, there is hardly any research with a comprehensive coverage in the context of Nepal. In the specific case of transition to low carbon economy, ILO reviewed the methodologies used to speculate the skills demand. According to ILO, generally two methodologies are found adopted to analyze the employment effects of any intervention, they are Input-output models and SAMs (models based on social accounting matrices) at the national or sub-national level⁹. Input-output model can

⁶ MoF, 2012, The Economic Survey, Kathmandu: MoF.

⁷ Pradhan, H, Neupane, BR and Sapkota, H., 2014, Analysis of Skills Gaps between Selected CTEVT Curricula and Demand in Labor Market

⁸ Neupane, B.M. (2010). Increasing access of technical education and vocational training (TVET) programs and relevancy to the job market. Technical and Vocational Education and Training Development Journal, CTEVT

⁹International Labor Organization, 2012: Comparative Analysis of Methods of Identification of Skills Needs in the Labour Market in Transition to the Low Carbon Economy.

estimate the increase in output and employment, sector-by-sector, caused by growing demand for construction services to modify existing houses.

A study conducted by YUWACCESS Project regarding the labour market survey adopted the mixed methodologies of desk study and administered the “Labour demand and supply” questionnaires to 15 FNCSI (Federation of Nepal Cottage and Small Industries) Districts Chapters. Various short term vocational training providers use rapid market appraisal (RMA) approach to identify the local immediate demands. A study by CTEVT regarding the projection of demand of technical human resources adopted ratio and trend analysis from health and engineering sectors, respectively (Joshi et al 2014^{10,11}).

Likewise, a study conducted by GIZ in 2010 adopted the Meta-Analysis approach to conduct the rapid market appraisal especially focused on the training requirement for Maoist army combatant¹². According to the publication of world health organization (WHO), the projection approach for human resource in health services mainly explained two models: Supply Model and Requirement Model. In the supply model, annual loss rate method and cohort method are mainly emphasized whereas in the requirements method, disaggregation of sector-wise requirements is speculated and then it is summed up for national figure. (HUMAN RESOURCES FOR HEALTH: Models for projecting workforce supply and requirements¹³)

In summary, each of these methods have their own strengths and weaknesses. This proposal attempts to incorporate the strong part of these studies and revise on the weaker ones. Review of the methods used in these studies leads us to conclude that none of the methods can be replicable for this assignment. However, these studies give ample logical insights for designing and conducting this assignment.

1.5 Methodology

Although quantitative data obtained from the field survey was the major basis for analyses, mixed method was used to accommodate the qualitative information. Such type of qualitative information was collected from Focus Group Discussion (FGD) and key informants' interview. Likewise, desk review of available secondary information was also the major part of analysis of this study. For the quantitative information, survey of the employment units was the major source as suggested in the ToR. Semi-structured data collection formats was used for the survey of the employment units since scope of the study was limited with only in Agriculture, Health, Engineering and Tourism, the potential employment units in each sector were identified by reviewing sufficient relevant literatures.

¹⁰ Joshi, S. & Neupane, M. (2014). National Skilled Human Resource Projection in Health and Engineering Profession, CTEVT under Technical Support of MDSI and Unpublished document).

¹¹ This report was prepared under the technical guidance of Dr. Hari Pradhan.

¹² CTEVT (2010). A rapid assessment of potential labour market for rehabilitation on Maoist Army Combatants: A desk study for GIZ. GIZ

¹³ Human resources for health: Models for projecting workforce supply and requirements¹³.

Sufficient qualitative information was also obtained from the focus group discussion (FGD), Key-Informants' Interview and desk analysis of relevant study reports and proceedings. Unstructured interview checklists was developed and used for FGD and Key-informants' interview. The obtained qualitative information was applicable both to substantiate and triangulate the findings of the primary survey. Moreover, such type of qualitative data better helped to speculate the future requirements of workforce where quantitative data was not much supportive.

1.5.1 Survey of Employment Units

In this survey, the word '*employment unit*' refers to the organization or institutes or firm that is presently providing or has potential to provide employment to basic and middle level technical human resources as a wage-employee or self-employee e.g. local bodies, manufacturing industries, contractor agencies, star and non-star hotels, travel and trekking agencies, small agricultural enterprises, private hospitals, NGOs and so on. The government bodies were not included in the employment unit's survey because employment creation in government sector does not depend upon the policy of individual organization but on the national policy. So, the survey of employment units only covered private sectors and local bodies, which are independent to conduct their own activities.

The primary survey which was the major source of information for this study was conducted in formal enterprises of Agriculture, Engineering, Health and Hospitality sectors as mentioned above. Both formal and informal employment within these sectors was covered in the study. However, informal employment in informal sector was not analyzed under the quantitative approach. Survey requires predetermined population however, obtaining the list of such types of informally run business or production units was almost impossible thereby making it difficult to draw valid sample and conduct survey. Thus, the qualitative approach was mainly focused to analyses the employment opportunities in the informal sector as mentioned hereafter.

The employer or owner of the employment unit were the respondents of this survey in the small production or business firm whereas responsible officer in human resource section was the respondents for local bodies and large enterprises. The probable types and numbers of such employment units in each of the above specified sectors is explained separately hereunder.

1.5.1.1 Agriculture

In the agriculture sector, the formal employment is limited within the government offices, banks, various categories of agro industries including large agricultural firms, dairy industries, agro-vet centers, I/NGOs, educational institutes, and so on. As mentioned earlier, employment opportunities in civil service depends upon the national policy and covered by qualitative approach since individual government offices may not have any individual plan for expansion. The survey was therefore conducted only in registered private or cooperative organization or firms. The information about the registered firm was gathered from company registration office, cottage and small industry office, department of agriculture etc. The registered organizations obtained from related government officials was considered as the total population of this sector which was

calculated 28,250. The list on type of employment units for the primary survey is depicted hereunder.

- a. Agriculture Development banks as well as other cooperatives and small farmer development banks
- b. Various types of agro industries including agro firms, tea plantation and processing centers, fishery, and animal husbandry
- c. Various cottage industries including agro-vet centers and agro input producers and suppliers, tea and coffee processing centers, jam jelly and pickle processing centers
- d. INGOs/NGOs working for the agriculture sector development;

1.5.1.2 Engineering

The engineering sector which is the major sector related with the infrastructure development have the broader capacity for creating employment within a country. The infrastructure development activities in the country such as road and bridge, commercial as well as residential housing, electrification and construction of mega projects, adoption of computerized system in the personal and official activities, the mechanization of human activities are the primary determinants that provide signals for the expansion of this sector and hence, reflect the idea for HR requirements. The contractor agencies registered in DDC and Ministry of Physical Planning, engineering consultancies, engineering institutions, manufacturing establishments, Local bodies especially municipalities was the total population of the engineering sector. The total employment units in the construction sector was calculated as 22,969.

- a. Public and private educational institutes
- b. Contractors' associations/agencies and housing agencies
- c. Educational consultancies
- d. Workshops and service centers;
- e. Cottage industries related to construction (Carpentry, iron workshops, grill association, occupational association such as furniture)
- f. Manufacturing and other service industries under the specified categories

1.5.1.3 Health

Presently, formal employment opportunities for health professionals are available in hospitals, health posts, polyclinics, pathologies, dispensaries, pharmaceutical companies, medical colleges and other health institutions etc. The primary survey on all of these units were the major sources of information for the analysis. A total of 13,458 employment units was taken as the population of employment units in this sector. The list given hereunder was the type of representative employment units' in the health sector.

- a. Private health service providers (hospital, nursing homes, polyclinics,
- b. Pathologies , dispensaries,
- c. School/ Institutions
- d. Large industries

- e. I/NGOs
- f. Pharmaceutical companies

1.5.1.4 Hospitality

The employment provided by the tourism industry is the function of the flow of tourists (both internal and external) in the country. The activities or establishment related with the tourism industry such as hotel and lodge, travel and trekking, mountaineering, home stay service, religious tourism, sports tourism such as paragliding, rafting and bungee jumping, are the major guiding factors for employment assessment. The number of such establishments and their activeness had provided insights about the employment creation capacity of the tourism industry. The total number of registered enterprises of the above mentioned activities was the total population of the study which was calculated as 200,662. The lists of some employment units' type in tourism sector, from which the sample was drawn:

- a. Hotel, lodge, restaurants and tea houses
- b. Travel/ Trekking/Rafting/ Mountaineering Agencies
- c. Home stay services
- d. Emerging occupations on tourism including bungee-jumping, paragliding etc.
- e. Associate members of Hotel Association of Nepal (HAN) and Hotel Professional Federation of Nepal (HPFN)

1.5.2 Sample Frame and Sampling Methodology

The population of the study was determined by summing up nationwide figure of all the registered companies or probable employment units from the above mentioned four sectors which was also considered as sampling strata. Then, statistically representative sample size was determined from this population applying the following formula within each stratum considering 5-7 % margin of error and 95% confidence level as per the sector. The margin of error is considered 6.21% for agriculture sector, 5.48% for engineering sector and 5% for remaining two sectors.

$$n = \frac{\{z^2 \times p \times (1 - p) + t^2\}}{\{t^2 + z^2\{p \times (1 - p)\} / N}$$

Where,

- n is the required sample
- 'z' is the value of Z score at 95% confidence level (1.96)
- 't' is margin of error (5-7% is proposed)
- 'p' is probability (.5 is taken)

The tentative population, respective sample size with sampling weight of each sector was given hereunder in Table 1.

Table 1.1: Tentative Population and Proposed Sample Size

SN	Name of Sector	Tentative Population (Nation-wide)	Sample Size (Selected districts)	Probability of Selecting Sampling	Sampling Weights
1	Agriculture	28,462	247	.0086	115.2
2	Health	19629	398	.0202	49.31
3	Tourism	24094	384	.0159	62.74
4	Engineering	200,438	315	.00157	636.1
5	Total	272623	1344	.0049	202.84

Table 1.2: Sector and Employment Unit-wise Population and Sample

SN	Employment Unit	Population	Sample
1	Banks and Financial Institutions	272	22
2	Agro Related Cottage and Small Industries	9,217	119
3	INGOs /NGOs(Agriculture Related)	18,625	58
4	Agro Industries (Small, Medium and Large)	271	44
5	Educational Institutions/Training Centers	77	4
Total of Agricultural Sector		28,462	247
2. Health Sector			
1	Hospitals (Private /Mission/Medical College)	508	55
2	Clinic/Polyclinic / Pathologies	500	49
3	Pharmacies	6,000	153
4	Pharmaceutical/Health Equipment Industries	44	5
5	Educational Institutions	459	48
6	Health Related Cottage Industries	459	63
7	Health Related I/NGO	11659	25
Total of Health Sector		19,629	398
3. Engineering Sector			
1	Contractors' Agencies	16,655	104
2	Industries (All types and categories)	4046	90
3	Cottage Industries	179,805	119
4	Educational Institutions	156	57
5	INGOs (Engineering Related)		14
Total of Engineering Sector		200,438	384
4 Tourism or Hospitality Sector			
1	Hotels (Star + Non Star tourist standard)	499	195
2	Agencies (Travel, trekking , rafting.....)	4488	94
4	Tourism Related Industries	957	15
5	Tourism Related Cottage Industries	18150	7
6	Tourism Related I/NGOs	Not Specified	4
Total of Tourism Sector		24,094	315

After determining the sample size from each stratum, the sampling was carried out in two stages (multi-stages). The seventy five districts were categorized into 10 different analytical domains covering similar economic and geographical characteristics as given in table 1.3. Out of 75 districts, 25 districts covering 2-5 districts from each analytical domain were selected as sample district. These districts were Sankhuwasabha and Dolakha from Eastern Mountain; Sindhupalchok and Mustang were from Central Mountain and Bhajhang and Jumla were from Western Mountain. Similarly Ilam, Okhaldhunga and Udayapur were from Eastern Hill, Kabhrepalanchok, Dhading, Tanahun Kaski and Palpa were from Central Hills and Dadheldhura, Pyuthan and Surkhet were from Western Hills. Likewise, Morang, Siraha and Sarlahi were from Eastern Tarai, Parsa and Rupandehi were from Central Tarai and Dang and Kailali were from Western Tarai. Similarly Kathmandu District was selected from the three districts of the Kathmandu Valley.

From each (purposively) selected district, the above defined employment units were listed out by the help of desk study and administrative data of related organizations. The list of such employment units in each stratum was gathered from company registration office, Cottage and Small Industry Board, respective business and professional associations and national level survey data of related sector. The employment units of the selected districts were the actual population of the survey where each unit had chance to be selected in the sample.

Table 1.3: Analytical Domains of the Survey

	Eastern	Central	Western
Mountain	1. Taplejung 2. Sankhuwasabha 3. Solukhumbu 4. Dolakha	5. Sindhupalchok 6. Rasuwa 7. Manang 8. Mustang	9. Bajura 10. Bajhang 11. Darchula 12. Dolpa 13. Jumla 14. Kalikot 15. Mugu 16. Humla
Hills	1. Panchthar 2. Ilam 3. Dhankuta 4. Terhathum 5. Bhojpur 6. Okhaldhunga 7. Khotang 8. Udayapur 9. Sindhuli 10. Ramechhap	11. Kabhrepalanchok 12. Nuwakot 13. Dhading 14. Makawanpur 15. Gorkha 16. Lamjung 17. Tanahu 18. Syangja 19. Kaski 20. Myagdi 21. Parbat	26. Achham 27. Doti 28. Dadeldhura 29. Baitadi 30. Pyuthan 31. Rolpa 32. Rukum 33. Salyan 34. Surkhet 35. Dailekh 36. Jajarkot

	Eastern	Central	Western
		22. Baglung	Kathmandu Valley
		23. Gulmi	1 Kathmandu
		24. Palpa	2 Bhaktapur
		25. Arghakhanchi	3 Lalitpur
Tarai	1. Jhapa	9. Rautahat	16. Dang
	2. Morang	10. Bara	17. Banke
	3. Sunsari	11. Parsa	18. Bardiya
	4. Saptari	12. Chitwan	19. Kailali
	5. Siraha.	13. Nawalparasi	20. Kanchanpur
	6. Dhanusha	14. Rupandehi	
	7. Mahottari	15. Kapilbast	
	8. Sarlahi		

The seventy five districts selected from above mentioned 10 analytical domains for the survey were Sankhuwasava, Dolakha, Sindhupalchok, Mustang, Bajhang, Jumla, Ilam, Okhaldhunga, Udayapur, Kavrepalanchok, Dadhing, Tanahun, Kaski, Palpa, Dadeldhure, Pyuthan, Surkhet, Morang, Siraha, Sarlahi, Parsa, Rupandehi, Dang, Kailali, and Kathmandu.. Among the above mentioned 25 districts, Dolakha, Sindhupalchowk, Kavreplanchowk and Dhading were the districts which were severely affected from the Earth Quake 2072.

The employment units, selected from four different employment sectors were classified into different groups based on the size of employment (where available from secondary sources), types of organization and nature of jobs provided (formal & informal). The calculated sample number (374-384) in each sector was proportionately distributed to all these different groups and sampling was made randomly.

1.5.3 Development of Questionnaire and Pilot Test

A semi-structured questionnaire was developed to gather the required information from these employment units which had included the following information.

- Status on presently employed technicians e.g. number, qualification, training, skills
- Trend on level of business (booming, shrinking)
- Status on availability of required human resources, (oversupplied, undersupplied in terms of both quality and quantity)
- Skills gaps
- Efficiency level of available human resources (Satisfactory or unsatisfactory)
- Future planning of the business
- Technological innovation in respective business in international and national level
- Role of technicians for raising productivity and competitiveness in the business.

As mentioned above, a semi structured interview questionnaire and checklist were prepared for the survey. The questionnaire was developed by joint efforts of experts of consulting firm and finalized discussing with CTEVT, Event Project and World Bank. After getting the approval, pilot test was carried out. The questionnaire was finalized for the survey after incorporating the feedbacks obtained from the pilot test. Report on the pilot test data was prepared and submitted to research committee and the related organizations which further helped finalizing methodology and data collection instruments.

1.5.4 Desk Analysis of Secondary Sources

Beside the analysis of primary data, sufficient relevant literatures as well as other information were also collected from the secondary sources. These literatures included policy papers, periodic and master plans of development ministries, trends of sector-wise GDP growth and employment growths, increasing awareness level of citizens, mechanization of human activities; trends of inflow of tourists and trends of establishing new enterprises. The review and analysis of these literatures were mainly focused to get sufficient signals regarding the demand of technical human resources in the corresponding sectors. The detail analysis pattern and interpretation is presented in Part II.

1.5.5 Data Analysis and Report Preparation

Both quantitative and qualitative information were collected as mentioned in the ToR. Quantitative data was analyzed by the help of statistical software "Statistical Program for Social Science (SPSS)", whereas qualitative information was analyzed manually. Various statistical and econometric tools were also used to analyze the quantitative data as required. Likewise various established theories were also considered to analyze the qualitative information.

After completion of analysis, a draft report was prepared and discussed at the interaction program participated by wide range of stakeholders including CTEVT officials, other TEVT experts, professional associations, councils and federations and some freelance researchers. The appropriate and logical feedback obtained from the interaction program were considered while revising the draft report. Thereafter, this final comprehensive report was prepared.

1.5.6 General Outline of the Report

The report was developed and designed in to four different chapters and different sub-chapters as outlined hereunder.

- 1 Introduction
- 2 Analysis of Public Policy and Economic Trends
 - a. Agriculture
 - b. Engineering
 - c. Health
 - d. Hospitality
- 3 Analysis and Findings
 - a. Quantitative Analysis
 - b. Qualitative Analysis
 - c. Brief of Interaction Program

- 4 Speculation of Demand
 - a. Agriculture
 - b. Engineering
 - c. Health
 - d. Hospitality
- 5 Conclusion and Recommendations

1.5.6 Limitations of the Study

Although every social research has to be carried out under notable number of limitations. This study couldn't be an exception. The major limitations of the study were as follows.

- Although this study is proposed as a survey, however conducting survey with statistically representative sample size in the four broader sectors such as Agriculture, Engineering, Health and Hospitality was not possible only covering 1200 employment units. So this study is more an anticipation of skills demand rather than the labour marker survey.
- The data collection work of the study had to be carried out in a completely unfavorable condition of the country because of the fuel crisis resulted from undeclared border blockade. The following are the major reasons. Study has to faced several problems such as lack of means of transportation, closure of major industries and hotels, absent of authorized representative in employment units which adversely affected smooth data collection and supervision.
- The long period time series data is the prerequisites for the projection or speculation of future HR requirements which was another major limitation of the study.
- In initial period of the study, the devastating earthquake of April and continuous aftershocks adversely affected to collect secondary information to design the methodology of the study.

PART TWO

ANALYSIS OF SECTORAL POLICIES AND ECONOMIC TRENDS

2.1 Introduction

The supply and demand approaches have been adopted to analyze the labour market demand of technical human resources in this report. As per the demand approach, demand of individual employers are summed up to get the aggregate demand of the Nation. Unlike the demand approach, demand of workforce in general or technical workforce in specific is considered as the derived demand of the production sector. Under this approach, future projection of output growth made at first and calculated the demand of labour accordingly by means of employment elasticity¹⁴ of output growth.

The general discussion and analysis are made regarding those variables which are mainly responsible for generating employment in an economy in general and Nepalese Economy in particular. In this regard, public policies related to socio-economic development of the nation, past trends on employment and economic growth, inflow of tourist, house construction trends, are analyzed separately in four topics - Agriculture, Engineering, Health, and Hospitality as the employment units were stratified for the sampling purpose.

2.2 Agriculture Sector

Official survey data tells that around 64% of population are still engaged in agriculture occupation (CBS, 2011). According to Nepal Living Standard Survey 2010/11, 61.3% of Nepalese are engaged in self employment in agricultural sector whereas 2.8% percentage of population are engaged in this sector as wage employed. Official data also tells that 271 Agro-based Industries and 9,217 Agro-Based Cottage Industries are operating their production and service activities which provide employment opportunities to 29,153 and 37,203 people respectively (DCSI, 2070). As per the findings of this survey, out of the total workforce engaged in the industries, 47.27% are generally required with technical background. As per the data of industrial statistics 2070/71, the trend of new employment provided by the Agriculture-Based Large Industries and Similar type of Cottage and Small Scale Industries are given hereunder.

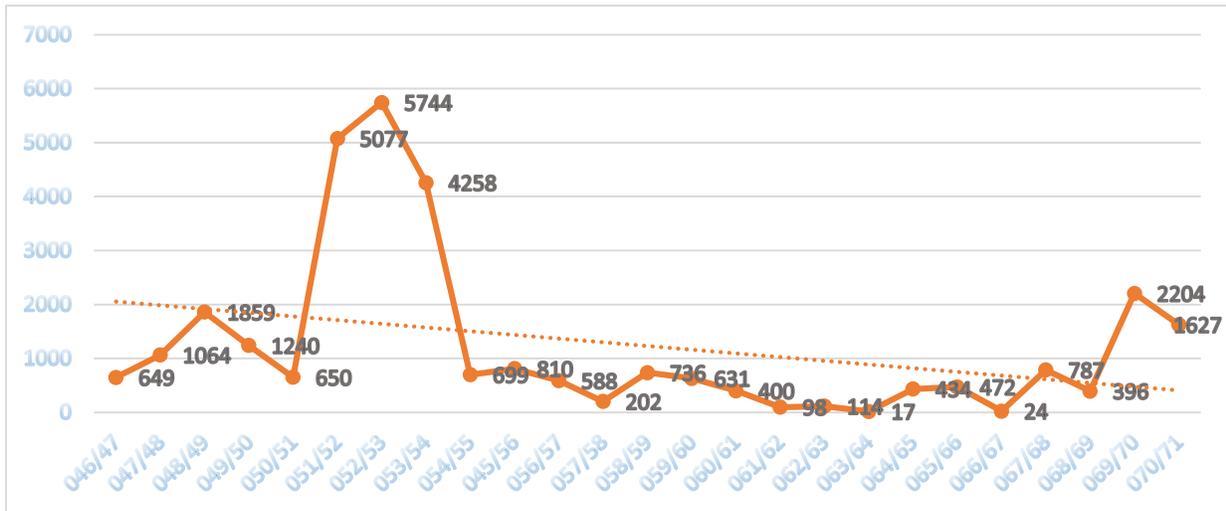
The industries related to Animal Farming, Dairy Industry, Fish Farming and Herbal Processing are found in increasing trend whereas some other areas of agriculture such as Nursery business, Bee Keeping, Tea Plantation, Natural Fiber are found shrinking during the same period (DCSI, 2070) as the registration trend of cottage industries between 063/64 to 069/70 is analyzed by comparing the number of registered industries between former three years to later three years,

The employment trend in agro-industry of last 25 years is depicted in Chart 3.1. In the beginning years, the annual employment opportunities provided by newly established industries have increased however, this trend saw remarkable decline in 052/53 which was also followed in the subsequent years. Such type of decline might be the result of the unstable political situation due to

¹⁴ Employment Elasticity of output growth is proportionate change in employment due to the unit change in output i.e. production sector.

emergence of moist insurgencies in the country. This trend started to climb up gradually when it reached to fiscal year 063/64. It might be because of the hope of business community towards the newly developed situation i.e. settle down of moist issue and establishment of Federal Democratic Republic.

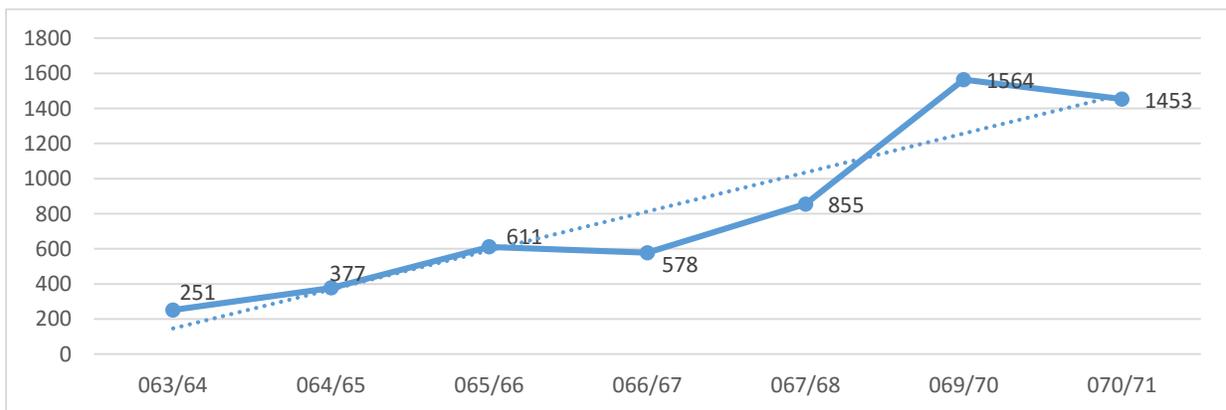
Chart 2.1: Employment Trend in Agro- Industry



Source: Industrial Promotion Statistic 2070, DCSI

The Chart 2.2 indicates the trend of number of registered cottage industry under Agriculture and Forest Based category since 063/64 to 070/71. The line shows the increasing trend. The number of industries registered in every following years is always greater than its preceding years except in the fiscal year of 066/67 and 071/72. Since the number of employment is also directly proportional to the number of industry, the employment creating capacity of these cottage industries is also estimated in the same trend as the trend of registered industries.

Chart 2.2: Trend of Registration of Agriculture and Forest Based Cottage Industry



Source: Industrial Promotion Statistic 2070, DCSI

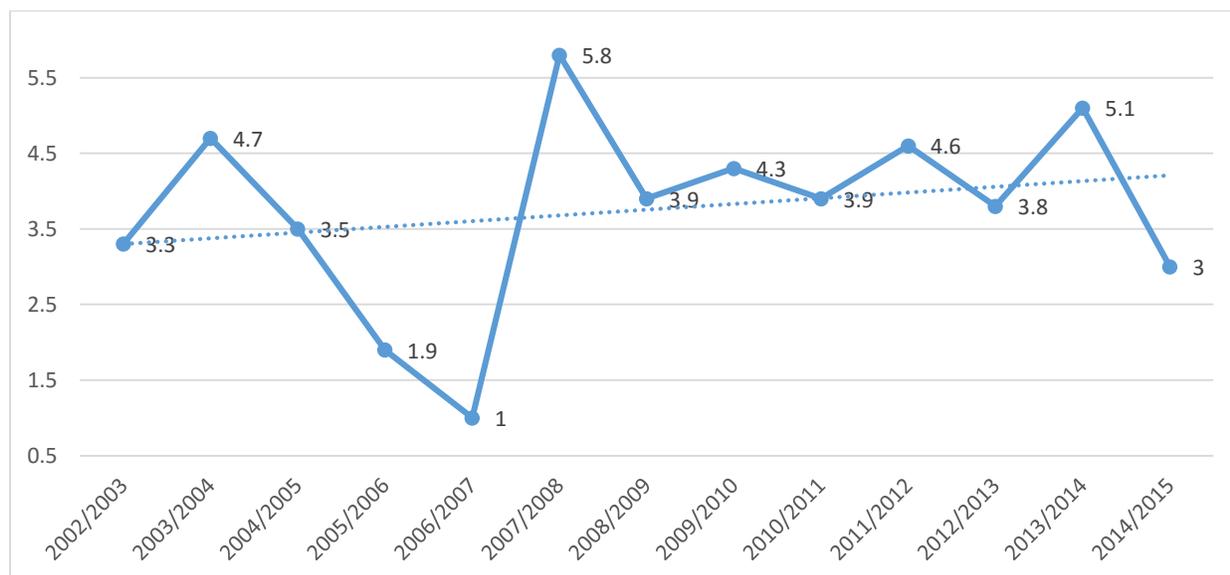
As per the trend line of both graphs, it can be speculated that remarkable number of employment opportunities can be generated in both type of industries in coming years. As per industrial

statistics, per industry employment of cottage and small industry was 4.03 and large and medium industry was 85.

2.1.1 Trend of Economic Growth of Agricultural Sector

The growth rate of agricultural sector can be considered as the major indicator for speculating the demand of agricultural technicians, however the agricultural growth rate in Nepal depends more on seasonal factors than technological factors. Presently, only 54% of agricultural land is irrigated, and productivity of the rest 46% agricultural land depends upon the monsoon. If the trend of growth rate of agricultural is reviewed, it was around 3.5% in last decade. In the time series data, maximum rate is observed in fiscal Year 2007/08 where the growth rate is 5.8 percent. Unlike, it is at the minimum level at fiscal year 2006/2007 with 1% (MoF, 2016). Although, the pattern of growth rate is not deterministic but stochastic and moves up and downs, the upward slopping trend line shows the rising trend of growth rate of agricultural sectors (See Chart 3.3). The growth rate of agricultural sector in the last decade is depicted in the Chart 3.3 below.

Chart 2.3: Growth Trend of Agriculture Sector in the Last Decade



Source: Ministry of Finance, Economic Survey 2014/15

2.1.2 Policy Measures for Agriculture Development

Agriculture is being considered as a backbone of Nepalese Economy since long time, it has got due consideration in every development plan and policies. The lack of agriculture labour as well as technology and technician are the major stumbling blocks for the development of this sector. Presently, the contribution of Agriculture and Industry Sector to GDP is decreasing, whereas the contribution of Service sector is increasing. In the Fiscal Year 58/59 the contribution of Agriculture sector to GDP was 37.9%, which had decreased to 32.3% in Fiscal Year 071/72. Unlike the Agriculture Sector, the contribution of Service sector has increased from 45.1% to 53.2% during the same period (58/59-071/72) (MoF). Similarly, the proportion of population depends upon agriculture is decreasing slightly because of shift from agriculture to other non agricultural occupations, however majority of labour force is still consumed by this sector. In the present years, due to the increasing attraction of foreign employment, large plots of agricultural land is becoming barren which converted Nepal as an agricultural importing country to agricultural

exporting country. Mechanization of agriculture sector seems to be instrumental to solve the present labour problems which requires both technology and technicians.

Presently, the agriculture policy 2004 is in place. The long-term vision of this policy is mentioned as bringing an improvement in the standard of living through a sustainable agricultural development by transforming the current subsistence oriented farming system into a commercial and competitive farming system. Towards achieving this vision, priority has been given in the promotion of agriculture colleges and establishing agriculture universities since the role of human resources is always crucial in the efficient and effective utilizations of resources (GoN, 2004). Similarly in the current Three Years Plan 2070/71-072/73, raising production and productivity of agricultural sector is prioritized. In this regard, capacity building of farmers, youths, entrepreneurs and specialists is taken as major concern so as to enhance the use of appropriate technology in fields such as commercialization of agriculture sector, quality test and monitoring.

Government of Nepal has recently developed and issued 20 years Agriculture Development Strategic (ADS) 2015-2035, which has envisioned a self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth and contributes to improve livelihoods and food and nutrition security leading to food sovereignty. The ADS has also aimed to achieve the remarkable agriculture growth rate of 6% with the help of expanded agribusiness, the contribution of which is equivalent to 20% of GDP and 80% year round irrigated agricultural land. The agricultural technicians which will be required in remarkable quantity is proposed to achieve by strengthening agriculture education system in Nepal. This has been proposed to launch a comprehensive package of measures to ensure closer integration with research and extension, improved capacity of the university, agricultural colleges, and vocational schools, and better response to the needs of farmers and agro enterprises. This plan has also proposed to establish 4000 additional agriculture service centers which can generate the employment opportunities for middle level agricultural technician equivalent to this number or more. Moreover, Ministry of Agriculture has recently issued a commitment paper which has planned to allocate an agriculture/Livestock Technician to each of 3000 Village Development committee (MoA, 2015).

To sum up, the agriculture policy and agriculture development strategy not only create notable employment opportunities in public sector but also create formal employment opportunities in private sectors and remarkable employment opportunities in informal sector.

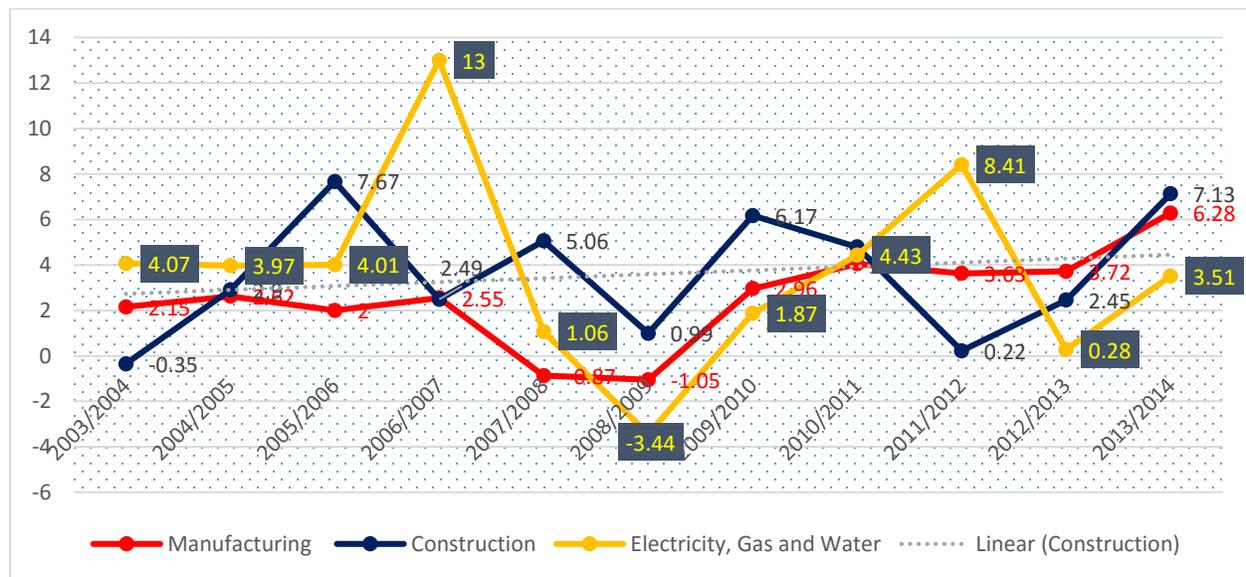
2.3 Engineering Sector

Construction, Manufacturing and Automobile are the major employment sectors for graduates of engineering trade such as industries of several categories, mega projects of hydro-electricity and road construction and irrigation, production and maintenance of automobiles and so on. Similarly the service sectors such as the construction, electricity, gas and water also provide employment to significant number of engineering graduates. Analysis of growth trend of past and public planning and policies for future development could provide a blur signal for HR requirement.

The Chart 3.4 denotes the growth trend of Manufacturing, Construction and Electricity, Gas and Water. All of these sectors represent the engineering sector in majority cases. The trend of each of these subsector is not deterministic but stochastic with flexible growth rate. If it is analyzed the growth trend of electricity gas and water sub-sector in the last decade, it ranges between 13 and -

3.44. Similarly the growth rate of construction subsector ranges between -0.35 to 7.67 and the growth rate of manufacturing subsector is somewhat consistent and in the rising trend except between 2007/2008 to 2009/10. In the fiscal year 2009/10 the growth rate of all three subsectors is in downward and decreasing whereas in the Fiscal year 2011/12, the growth rate of all three sectors is reasonably higher (MoF, 2015). A single factor can't be found responsible for such situation however, political instability and lack of other favorable environment for business could be responsible for this situation in totality. On one hand, the trend of these growth rates is not in deterministic to rightly speculate the future growth and on the other hand the employment elasticity of output growth is also found too variable to calculate the employment growth based on the projected output growth.

Chart 3.4: Growth Rate of Major Sub-sector



Source: Ministry of Finance, Economic Survey 2014/15

Although sufficient number of literatures is available in the international context regarding the relationships between output and employment growths, such type of study is rear in Nepalese Context. A study conducted by CTEVT, Research and Information Division has stated as follows.

According to Three Years Plan 2010/11-12/13, GDP growth was 4.4% at the base year whereas the corresponding employment growth is only 3. The same plan had targeted the GDP growth rate of 5.5 for the whole plan period, the corresponding target of employment growth is only 3.6. According to the current three years plan 2013/14-15/16, the corresponding figure of GDP growth is 3.2 and 6.0 vs employment grow rate of 2.9 and 3.6 percent respectively. By using these four figures, the employment elasticity of output growth is derived as 0.71. The employment elasticity of output growth does not follow the linear path. Moreover, a polynomial function more favors the relationships. The equation depicted in the chart 3.1 was used to find out the growth rate of employment with the given growth rate of GDP. (CTEVT, 2013)

In this regard, employment elasticity of output growth can't be justified as a reliable approach to forecast the employment growth rate in the future however neither the better methodology nor time

series data of sufficient period of time is available to replace this approach. In this report, the above mentioned facts are considered while making projection.

2.2 Policy Measures for Industrial Development

Industry is considered as a major employment sector which provides opportunities to significant number of youths both as a self employment and wage employment. As it was discussed earlier, the growth rate of industrial sector of Nepalese economy is almost nominal during the last decade. In the same time, its contribution to GDP has also been decreased from 17% to 14.5%, despite the efforts of government to promote the industrial sector or industries (MoF, 2015).

Government of Nepal has initiated several policies and strategies for the Industrial Development in Nepal. Regarding employment promotion, several measures are suggested in the employment policy 2071, such as promoting foreign employment returnee workers in the construction industries run by private sectors, prepare efficient human resources by means of skill development activities as per the need of infrastructure development sector focusing on the designing, maintaining, and developing road networks. (GoN, 2071).

The analysis of sectoral development plan of the government and past trend of sector wise growth rate provide enough grounds to speculate the demand of related HR in future. General discussion is therefore made regarding the demand and employment potentialities for Engineering Human Resources in next paragraph.

The need of different levels of technicians in Civil Engineering profession depends upon the growth rate of construction sector in the country. However, this growth rate is further the function of both public and private investments, level of technology, type and quality of developed infrastructures. Since level of technology and type and quality of infrastructures are fixed in a short term, the demands of such technicians are more explained by the amount of investments in infrastructures development. But in the long term, none of the factors remains constant and all are responsible for the growth of the construction sector.

2.3 Present Situation of Infrastructure Development:

As per the TYP 2013/14-15/16, GoN had aimed to expand road transportation by 3000 km and upgrade the status of 2100 km existing roads. Similarly, 310 new bridges were targeted to construct during the plan-period (NPC, 2013). According to Er. Phupendra Bahadur Basnet, then Director General, DoLIDAR, construction of each 10 km of new road requires one civil engineer. In general, one civil engineer should be assisted by 2-3 sub engineers (Overseer) and 4-5 sub-overseers¹⁵. On the basis of this reasoning, almost 1000 overseers and 2000 sub-overseers are required in transportation sector. However, due to the wide use of modern technologies in the engineering sector and availability of overseer could adversely affect the demand of sub-overseer and therefore could gradually replace sub-overseers by the overseers¹⁶. The existing road

¹⁵ The organization structure of DoLIDAR includes 158 engineers and 300 sub- engineers which is almost in 1:2 ratio. Moreover, in the minimum requirement published by GoN for contractors' agency mentioned that A level contractors agencies must require 2 engineer and 4 overseer, this is also in 1:2 ratio.

¹⁶ At the beginning years, the Civil Sub-overseer programs were run under full capacity, however after launching diploma level program, enrollment in Sub-overseer programs has dramatically declined. The average enrollment in Civil Sub-overseer program are 29.9, 28.6, 24.9, and 29.6 respectively for the year 2067, 2068, 2069 and 2070.

upgrading activities and bridge construction will also require additional number of such human resources.

Hydroelectricity is another major investment sector which requires large number of engineering technicians in various categories such as Electrical, Civil, and Architecture. Government aimed to start 584 MWs of hydroelectric-projects and complete projects with 668 MW of capacity which are under construction. Similarly, construction of 400 km of transmission lines, expansion of electricity facilities to 3000 new villages and increasing the share of population that have accessed to electricity facility from 67.32% to 87% are the expected outcome as per the current three years plan. An independent study jointly conducted by the National Planning Commission (NPC) and Investment Board Nepal (IBN) has made a forecast that per capita electricity consumption will reach 700 kilowatt hour per year (kWh/year) by 2030, which can be met through total installed capacity of 8,000 MW. Similarly, in another 25 years the per capita energy consumption is expected to hover at around 1,000 kWh/year and the country needs to develop 10,000 MW energy by 2040, as per the study. If we compare the ratio between electricity consumption and HR requirement between present and future, 10 times higher need of human resources in the construction phase and five times higher number of human resources in operational phases can be speculated (MoE, 2007).

These activities also require large numbers of engineers, overseers and other skilled human resources. However, it is difficult to quantify and categorize the requirements. If all the planned activities start in the planned period, the absorption capacity of skilled human resources of hydroelectric sector may be double of the present capacity.

Under the urban development activities, physical infrastructure for 16 municipalities are aimed to be developed which benefits 1.2 million population. In addition to this, 10 new cities are aimed to be developed to make enough residences for 1 million population. These infrastructure development activities will require substantial numbers of engineering professionals ranging from civil engineers to field supervisors (NPC, 2013).

Similarly, during the plan period, 3250 kilometer long agricultural road is targeted to construct. Likewise large number of suspension bridge construction will be initiated and irrigation facility will be available in additional, 35000 hectors of land. Through these interventions, a total of 250,00,000 labour-day employment will be generated. Informal discussion with the technicians working in concerned sector opined that the required proportion of engineer, overseer, sub-overseer and construction labours is 1:2:5:200. As per this assumption, altogether, 329 engineers, 659 overseers, 1646 sub-overseers will be employed in these activities. Because of the employment friendly policy of DoLIDAR, it adopts labour intensive technologies. Thus labours and supervisors are required in greater number than other high skilled staff (DoDIDAR, 2010).

Similarly, some multi-purpose mega projects such as Bheri-Babai Diversion, Kaligandaki-Tinau diversion, Sunkoshi-Kamala diversion are also under the discussing and designing phases. The Nepal Investment Board has initiated and started 12 different mega projects such as Midhill Highway, North-South Corridor, Terai Madhesh Fast Track Road Project, EW Electrified Railway Project, Hulaki Highway are the major projects of National Pride each of which has capacity to generate employment opportunities for thousands of construction related technicians.

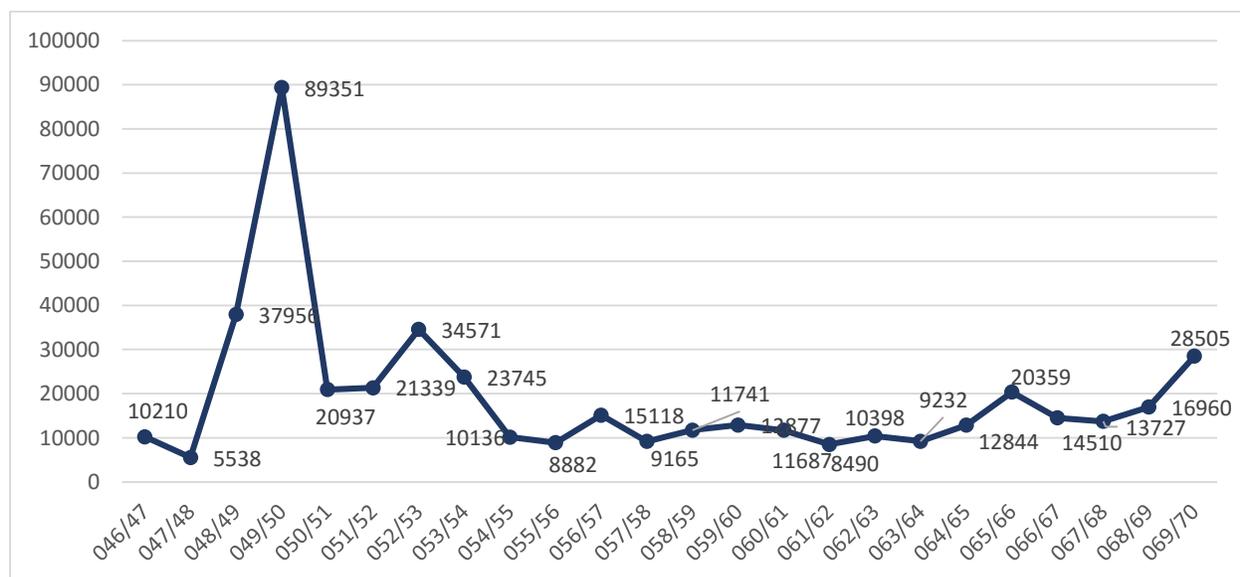


Alternative Energy Promotion Center has revealed that more than 28 megawatt of hydroelectricity has already been generated in more than 60 districts including 40 mini hydro, 999 micro hydro and 1480 pico hydro plants. Similarly, almost 2 hundred thousand biogas and 3 hundred thousand solar plants and appliances have already been installed throughout the country. These micro hydro and solar plants installation activities demand technical workforce with specific skills both at the installation phase and thereafter for regular operation and maintenance.

2.2.2 Employment Opportunities in Industrial Sector

The employment opportunities available in the major industries are not optimistic since both the contribution of industrial sector to GDP and growth rate of industrial sector are disappointing. At one time, the industrial sector used to create employment opportunity to almost 90,000 workforce annually, now it has declined to almost 20,000. The line graph in the Chart 2.5 depicts the industrial employment opportunity provided annually in the industrial sectors in the last 24 years.

Chart 2.5: Employment in Industrial Sectors



Source: Department of Industry, Industrial Statistics 2012/13

Employment Opportunities in Post Earthquake Situation

The catastrophic earthquake of April 25, and 300 aftershocks greater than magnitude of 4.0 thereafter has badly affected the country. To date, over 8,790 casualties and 22,300 injuries have been reported. It is estimated that the lives of eight million people, almost one-third of the population of Nepal, have been impacted by these earthquakes. Human settlements equivalent to NRs. 408,625 billion and public infrastructure equivalent to Rs. 65,783 billion is the estimating figure of damage caused by the earth quake (NPC, 2015). The catastrophic earthquake didn't only claimed the life of many Nepalese and damaged the infrastructures but also paved the way for employment creation in large numbers. The technicians related to retrofitting works seem to be highly demanded in the coming years. The post disaster recovery plan of Nepal pointed out the necessity of retrofitting of several public and private buildings. Instead of making new buildings, retrofitting reduces the carbon emission. Some green jobs like Micro-hydro technician, retrofitting technicians and technicians working in recycling areas are the emerging occupations.

2.3 Health Sector

The demand of technicians in health sector mainly depends upon the need of health service which is further the function of population of the country as well as health awareness of citizen. In the country like Nepal where health service is also run as private business, purchasing power of the citizens is also one of the major factors for the needs of health service. The hospitals, health posts, pharmacies, polyclinics and pathologies are the main areas for which employment opportunities for health services are provided. Similarly, large enterprises and institutions, I/NGOs also consume HRH in notable number. The government health policy is the main guiding principle for the employment creation in health sector.

2.3.1 Health Policy

The dynamics and dimensions of public sector job mainly in health related field is more explained by the provisions of public health policy. Presently, Government of Nepal formulated and implemented Health Policy 2071. This health policy has aimed to establish health service system to ensure basic and quality health services to all citizens by means of quality health personnel. As the main responsible organization to produce lower and middle level technical human resources to the country, the program delivery of CTEVT, particularly of health related programs, should be guided by this Health Policy. Unlike the other sectors, informal employment in health sector is rear, most of the employment in health sector are in formal sector.

The first and foremost objective of the government as mentioned in the policy is to provide basic health services to every citizen. Moreover, developing, acquiring and using efficient health technicians was another responsibility mentioned in the policy. For this to achieve, CTEVT is responsible to supply basic and middle level health technicians in sufficient numbers.

Regarding the management of Human Resource in Health, the policy has proposed the action plan of managing one doctor in every Village Development Committee together with required number of other health professionals and one ANM in each ward. Moreover it has also planned to expand pathology and X-ray services in each Village Development Committee Level.

The same policy has aimed to establish one health post in each 40 minutes' distance of national highway, primary health center for each 20 thousands population, 25 bed hospital for each 1 hundred thousand population as well as 1 doctor and 23 other health professionals will provide service for each 10 thousand people.

2.3.2 Availability of Health Services

Although policy has ambitious targets, present human resources allocation is not in satisfactory level. Total of 31,665 human resources are working in public health services out of which 33.8% of them are admin and supporting staff. Presently, 1636 doctors are working in the public health systems whereas the corresponding figure of paramedics, Nursing and Public Health staff are 7806, 6443, and 4296 respectively (MoHP, 2013). The detail figure of sanctioned post in the public health system is depicted in the Table 2.1.

Table 2.1: Situation and Trend Analysis of Health Sector

SN	Name of Category	Type of Positions	Total Sanctioned Posts	Percentage of Total Post
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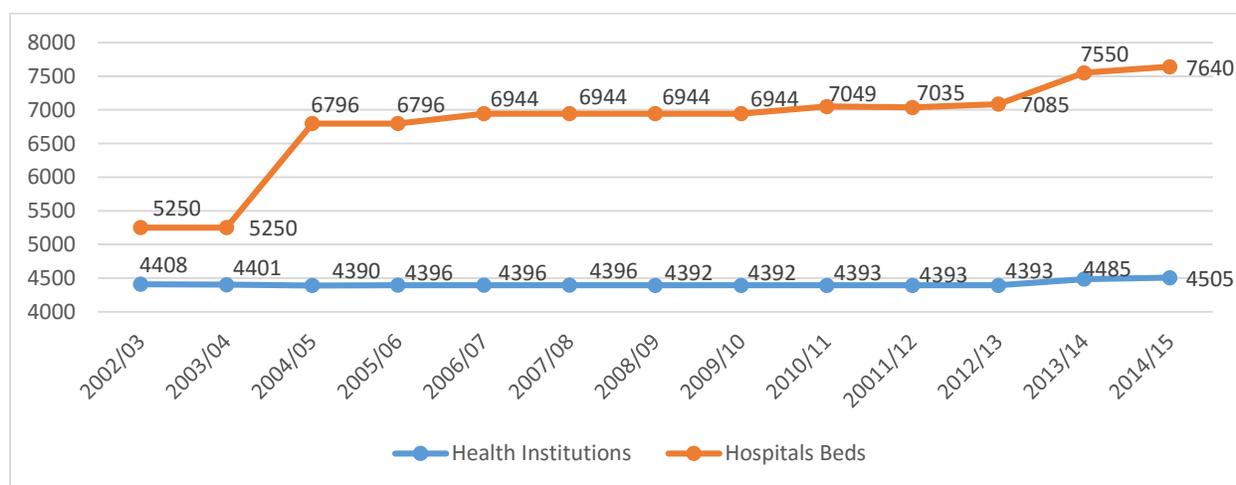
1	Admin/support	78	10695	33.8%
2	Paramedics	75	7806	24.7%
3	Nursing	17	6443	20.3%
4	Public Health	27	4296	13.6%
5	Doctor	57	1636	5.2%
6	Traditional	14	789	2.5%
7	Total	268	31,665	100.0%

Source: Primary Data, Human Resource Information System, MoHP 2013

2.2.3 Employment Opportunities for HRH

Hospitals and other health related institutions both in public and private sectors are the major employment areas for health professionals. The extension of health institutions therefore explain the requirement of health professionals to some extent, however demand of health services is not limited within the health institutions. Significant number of health professionals are also employed in private hospitals, Education institutions, NGOs and industries. Some of them are also engaged in informal sector as self employed. The Chart 3.6 depicts the time series data of health related institutions and hospital beds in public sectors which can be the good indicators to explain the demand of Human Resource in Health (HRH). The number of hospital beds increased abruptly in fiscal year 03/04 because of the policy of the government to extend the hospital beds in each health post and opening district hospitals. The same reason caused the abrupt increase of hospital beds in Fiscal Year 2013/14.

Chart 3.6: Establishment of Health Institutions and Extension of Hospital Beds



Source: Ministry of Finance, Economic Survey 2014/15

The health related institutions are almost in the same line since 02/03 to 2014/15. In fiscal Year 2002/03, 4408 health institutions were established throughout the country including health centers, health posts and hospitals. Presently this number has slightly increased and reached to 4505. The number of hospital beds has increased in greater proportion against the number of health institutions. See the Chart 3.6 for detail analysis.

Although, preparation of basic to higher level technical courses is under the responsibility of CTEVT however, CTEVT has not developed curricula of large number of health occupations. Ministry of Health and Population has identified needs of additional programs. Based on their analysis, MOHP had communicated a letter to CTEVT in 2067/12/9 for the appropriate management for preparation of these HRH categories (CTEVT, 2013). The detail figure of this projection is presented in Table 3.4. (CTEVT, 2013)

Table 2.2: List of demanded Skills in public Health Services

S N	Name of Programs	Projected Number	Level
1	Radiography Assistant	5000	TSLC
2	Physiotherapy Assistant	5000	TSLC
3	Optical Fitting and Dispensing	1600	TSLC
4	Ophthalmic Science	7000	Diploma
5	Operation Theater Assistant	2000	Diploma
6	Homeopathy	1000	Diploma
7	ECG/ECO	3000	Diploma
8	Orthopedic Assistant	3000	Diploma
9	Dental Mechanics	3000	Diploma
10	Acupuncture	5000	Diploma
11	Physiotherapy	3000	Diploma
12	OT Technician	1500	Diploma
13	Dialosis Technician	1500	Diploma

Source: MoHP, 2009

2.4 Hospitality Sector

Hospitality or tourism industry has become major economic activity in all the countries of the world in these days than ever before. It creates various direct, indirect and induced effects in the economy including employment creation and income generation. Because of its tourism friendly geo-social situation, there is high potentiality of tourism development in Nepal. The human resources in tourism sector are mostly absorbed in the formal establishment such as hotels and restaurants, travel and trekking agencies, mountaineering agencies and so on. However, the travel and trekking sector also generate informal employment in significant number.

2.4.1 Policy Analysis

The government had initiated Tourism Master Plan in 1972, tourism infrastructural development program in 1990s with the financial support of ADB, tourism policy of 1995 as a first consolidated policy, aimed at generating employment and income from tourism by diversifying it. Presently, Government of Nepal formulated Tourism Policy 2009, which was the major guiding principle for the tourism sector development. In 2009, government announced tourism vision 2020 with twin goals of (i) increasing the tourist inflow to two million and (ii) employing one million people in the tourism sector by the end of 2020. The tourism policy of 2009 has also set objective of (i) establishing second international airport, (ii) developing regional airports and (iii) restructuring NAC in a Public-Private Partnership (PPP) model. The tourism sector development have always been prioritized by every period plan and policies.

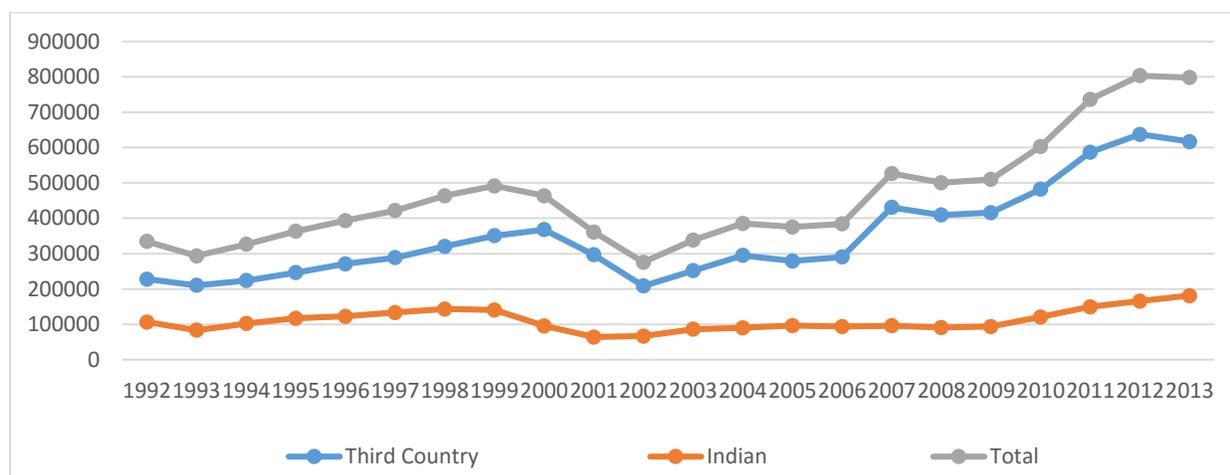
Nepal has high potential in mountaineering, trekking, mountain flights, jungle safari and adventure tourism such as rafting, bungee jumping, mountain biking and Para-gliding (sky sports), which are popular among tourists. Tourism, no doubt helps in terms of employment generation, infrastructure development, cultural preservation, environmental protection, foreign exchange earnings and expansion of other amenities such as healthcare and education. At the same time, if not managed well, it might adversely impact local goods and services in favor of imported ones, can lead to environmental and cultural degradation, high costs for maintaining the tourism destinations, and could foster illegal economic activities such as drug peddling and wildlife trade.

2.4.2 Trends of Tourist Flow

Accordingly to Economic Survey 2013/14, the number of tourist arrival in the current fiscal year declined by 0.7 percent to 797,759 person in the year 2013. The average length of stay of tourists had remained 12.9 days in 2012 came down to 12.6 days in 2013. By the first eight months of current fiscal year 2013/14, income earned through the tourism sector stood at Rs. 30.43 billion while per capita per day tourist expenditure stood at 34.5 US dollar. Contribution of the tourism sector to GDP stood around 2.0 percent, and providing direct employment to 178,000 persons (MoF, 2016).

The employment creation capacity of tourism sector is directly proportional to the number of tourist inflow since it is widely believed that one day stay of one tourist creates nine person-days equivalent to direct and indirect employment . According to the report of World Travel and Tourism Council, in the year 2011, 292 thousand people were directly employed in tourism sector whereas other 263 thousand were indirectly employed. Similarly, 170 are the numbers employed in other sectors because of the induced effect of it. This report further projected that employment in tourism sector will grow by 4.1 annually. As a result, by the year 2021, 108,600 people will be employed in tourism sector which will be 6.8% share of total employment generated in the economy (WTTC, 2011).

Chart 2.7: Trend of Inflow of Tourist



Source: Ministry of Culture, Tourism and Civil Aviation, Tourism Statistics 2014

As depicted in the Chart 2.7, the flow of tourist is found directly influenced by the political stability of the country and results on increased tourism establishment and employment in tourism sector. When the political situation is adverse, the flow of tourist falls when it is favorable it rises, In the

figure, during the period between 1999 to 2006, the moist insurgencies extremely affected the tourism sectors thus declined the tourist inflow however some improvement in political stability thereafter increased tourist flow (MoTCA, 2013).

As per the survey conducted by Ministry of Culture Tourism and Civil Aviation in 2014, status of employment generated in the last five years is at moderate level. Out of the total surveyed establishment, 49.2% reported that number of persons employed in their establishment has increased. The corresponding proportion of Star Hotel, Tourist Standard Hotel, Travel Agency, Rafting Agency, Trekking Agency were 37.8%, 47.9%, 35.7%, 40%, 84.6% and 62.5% respectively (MoCTCA, 2014)..

According to a study report conducted by Swiss Embassy of Switzerland for Nepal, there are about 61,000 small and medium sized hotel professionals which are employing staff ranging between 150,000 and 300,000. It is further reported that big hotels such as Hotel Sheraton are approaching to extend their services in Nepal. A single hotel of this kind generates around 1,000 new jobs (Pradhan etl, 2014)

5. Cross Cutting Issues of Federalism

The transformation of Nepalese Political system from unitary system to federal system affects various sectors. The employment in public services will definitely be affected by this transformation process. Federal government will need parallel system of Executive Legislative, and Judiciary system which requires sufficient number of employees to work in. But, the provincial set up of legislative and judiciary system will hardly require technical workforce. Under the executive branch, there should be parallel public offices in all seven provinces to provide technical services to the citizens. However, this requirement can be managed by adjusting existing district and regional offices to some extent whereas some new office set up will definitely be required. So the additional requirement will not require in the same proportion as there is in the present. In this line of thinking, it is easily assumed that the proportion of requirement of technical staff will be lower than the administrative and judiciary staff. As per the Information provided by Official of Public Service Commission, 20-30 more staff will be required for the complete federal system. Based on the information of public service commission, 20% more technical staff can be assumed to be required to address the public service system. The tentative requirements is analyzed in Part Five.



PART THREE

FINDINGS AND ANALYSIS

3.1 Quantitative Analysis

As mentioned in the methodology, this study comprises three types of analyses- quantitative analysis of primary data, qualitative analysis from focus group discussion (FGD) and key informants interview as well as desk analysis of secondary data. This part of the report is about the general findings and interpretation of quantitative analysis from primary survey in the formal topics and qualitative in the later. As mentioned in the methodology, 1344 employment units were surveyed covering various economic, and occupational sectors as well as different ecological and development regions. The information about their business and employees as well as general demand and supply of skilled human resources were covered in the analysis. The following paragraphs delineates the general findings of this survey.

3.1.1 Profile of Employment Units

The informants of this survey were either the owner of the enterprises or responsible officer working for human resource management. The enterprises surveyed for this study are ranges from micro level cottage and small industries to macro level big production houses. As the set of semi-structured survey questionnaire was developed comprising various questions related to number, qualification and training status of the employees, their performance level, skills gap, general demand and supply status of workforce and so on. The employment units surveyed were further categorized based on ecological and development regions.

3.1.2 Employment Units by Sampling Strata

As the survey was conducted based on stratified random sampling process by stratifying the population (Employment Units) under the strata of Agriculture, Engineering Health and Hospitality which are the major program areas run by CTEVT. These four program areas cover more than 95 percent of the long term training and academic programs of CTEVT. Two hundred and forty seven sample employment units were surveyed from Agriculture sector, 398 employment units were from Health Sector, 384 employment units from Engineering Sector and 315 from Hospitality sector. The corresponding sample number deserves the share of 18.4, 29.6, 28.8 and 23.4 percentage respectively in the total sample size. The figures depicted in the Table 3.1 reflects the detail pictures of the disaggregation by four major sectors.

Table 3.1: Disaggregation by Subject of Study

SN	Sector of Employment	Total Employment Unit	Percent	Remarks
1	Agriculture	247	18.4%	
2	Engineer	384	28.6%	
3	Health	398	29.6%	
4	Hospitality	315	23.4%	
5	Total	1344	100.0%	

3.1.3 Employment Units by Economic Sectors

The employment units are also categorized as per the major economic sectors e.g. Primary, Secondary, and Tertiary Sector. As the economic survey categorized agriculture, fisheries and mining and quarrying under the primary sector and similar categorization are also made as Secondary and Tertiary Sectors. Same standard was also followed which was mentioned in Table 3.2. The sample employment units comprises more than two third (935 or 69.6%) share of enterprises from tertiary sector. Notable number of employment units (24.1% or 324) were also represented from secondary sector whereas least number of employment units were represented from primary sector or agriculture related sectors. The Table 3.2 below reflects the detail pictures in this regard.

Table 3.2: Disaggregation of Employment Units by Economic Sector

SN	Sector Distribution	Wise Number of Employment Units	of Percent	Total Employment	Average Employment
1	Primary Sector	85	6.3%	2320	27.29
2	Secondary Sector	324	24.1%	15978	49.31
3	Tertiary Sector	935	69.6%	20193	21.60
4	Total	1344	100.0%	38491	28.64

3.1.4 Employment Unit Sub-sectors

Although, the sample size was determined by the stratified sampling process based on the sectoral strata of Agriculture, Engineering, Health and Hospitality, this number was further divided purposively into different sub-sectors to make the representation wider and selected sample accordingly. This categorization of sub-sectors includes industries, cottage industries, contractor agencies, hospitals, polyclinic and pathologies, pharmacies, education and training institutes hotel/restaurants. The predetermined sample size was purposively distributed as per their total population as well as per unit employment creation capacity.

Table 3.3: Disaggregation by Employment Unit Subsector.

SN	Name of Employment Unit (Subsector)	Number of Employment Unit	Percentage	Remarks
1	Bank and Financial	22	1.6%	
2	Industries	154	11.5%	
3	Cottage Industries	292	21.7%	
4	Contractor Agencies	104	7.7%	
5	Hospitals	57	4.2%	
6	Polyclinic/Pathologies	49	3.6%	
7	Pharmacies	169	12.6%	
8	INGO/NGOs	101	7.5%	
9	Education/Training Institutions	109	8.1%	
10	Hotels/Resorts	193	14.4%	
11	Travel/Tracking/Rafting Agencies	94	7.0%	
12	Total	1344	100.0%	

As the sample size was distributed to various types of employment units, cottage industries have the biggest share in the total sample whereas bank and financial institutes have the least shares with 21.7% and 1.6% respectively. Hotel and Resorts occupied the second biggest size in the pie with 14.4 % share in the total sample followed by Industries (11.5%), Pharmacies (12.6%), Education and Training institutes (8.1%) and I/NGOs (7.5%) and so on. The Table 3.3 reflects the disaggregated level of sample size as per the type of employment units with their corresponding share in the total sample.

3.1.5 Employment Units by District

As it is mentioned earlier in the methodology section, 25 districts were selected for the survey from ten analytical domains where each analytical domain comprises the districts with similar development level, social and geographical characteristics. All types of employment units were selected as a sample from each of the 25 districts. Majority of representation was from Kathmandu Valley (specially Kathmandu districts) which occupies 22.7% of total employment units. Notable number of employment units were also surveyed from Kaski and Rupandehi districts which occupies 9.6% and 9.2% volume of total representation. The breakdown of all 25 districts is depicted in Table 3.4.

Table 3.4: Distribution of Sample as per the Districts

SN	Name of Surveyed Districts	Number of Employment Unit	Percent
1	Sankhuwasava	30	2.2%
2	Dolakha	29	2.2%
3	Sindhupalchok	30	2.2%
4	Mustang	9	0.7%
5	Bajhang	13	1.0%
6	Jumla	12	0.9%
7	Ilam	34	2.5%
8	Okhaldhunga	21	1.6%
9	Udayapur	21	1.6%
10	Kavrepalanckok	53	3.9%
11	Dhadhing	36	2.7%
12	Tanahun	21	1.6%
13	Kaski	129	9.6%
14	Palpa	70	5.2%
15	Dadeldhura	21	1.6%
16	Pyuthan	29	2.2%
17	Surkhet	45	3.3%
18	Morang	52	3.9%
19	Siraha	27	2.0%
20	Sarlahi	39	2.9%
21	Parsa	64	4.8%
22	Rupandehi	124	9.2%
23	Dang	81	6.0%
24	Kailali	49	3.6%
25	Kathmandu	305	22.7%
26	Total	1344	100.0%

3.1.6 Distribution by Occupational Sub-sectors

The employment units were also classified in to different occupational sub-sectors as per the OSS/OP classification of NSTB. Since this classification is only based on the type of the employment units not based on the individual occupation of workers, some nature of occupation in a particular employment unit may be different than the employment units itself. As an example. industries also have health related staff for the primary treatment to their employees, hotel and restaurants may employ electrician and plumber for their internal maintenance. These occupational subsectors are Agriculture, Automobile, Computer, Construction, Construction Equipment and so on. Majority of employment units (27.8%) are related to health occupations followed by hospitality industries (22.8%), construction (10.5%) and Agriculture (9.2%) and so on. Likewise, the employment sectors accumulated under other sectors occupied (9.1%) share as per the distribution. The detail of the distribution is depicted in Table 3.5.

Table 3.5: Distribution by Occupational Sub-sector

SN	Occupational Subsector	Number of Employment Unit	Percentage	Remarks
1	Agriculture	124	9.2%	
2	Automobile	10	0.7%	
3	Computer	50	3.7%	
4	Construction	141	10.5%	
5	Construction Equipment	19	1.4%	
6	Electrical	5	0.4%	
7	Electronics	46	3.4%	
8	Forestry	2	0.1%	
9	Handicraft	19	1.4%	
10	Health	374	27.8%	
11	Hospitality Industry	307	22.8%	
12	Leather Goods and Products	4	0.3%	
13	Mechanical	25	1.9%	
14	Mountaineering	1	0.1%	
15	Others	122	9.1%	
16	Service	83	6.2%	
17	Tailoring /Garments	8	0.6%	
18	Textile	4	0.3%	
19	Total	1344	100.0%	

3.1.7 Status of Employees and Employment

Information about the total employees and details of the technical employees employed in each employment units were also collected from the survey. Among the total 1344 surveyed employment units, 38,491 staff were found employed with an average of 28.64 employees per employment units where the number of employees ranges from one employee to 1000 employees. The higher value of standard deviation (80.75) also suggests that the sample population was a heterogeneous group having more variability in terms of number of employees.

Similarly, Among the 1344 employment units surveyed, technical staff were only found employed in 1248 employment units. The sum of the technical staff in the 1248 employment units is 19,099 which are employed at the rate of 5.81 technical staff per occupation per employment units where the range of employee is 1 to 500 with an standard deviation of 20.54.

Table 3.6: Descriptive Statistics on Number of Employees

Type of Data	N	Minimu m	Maximu m	Sum	Mean	Std. Deviation
Total Number of Staff	1344	1	1000	38491	28.64	80.751
Valid N (listwise)	1344					
Total Number of Technical Staffs	3286	1	500	19099	5.81	20.544
Valid N (listwise)	3286					

The ratio between technical staff and total staff varies as per the different sectors and sub-sectors. If this ratio is compared as per the sampling strata (program of study), it is found higher in Hospitality Sector whereas this ratio is least in Agriculture Sector. In the Hospitality Sector, 52.37% of employed staff are from technical background whereas the corresponding percentage of Agriculture, Engineering, and Health Sectors are 41.67%, 50.54% and 51.26.% respectively.

Table 3.7: Ratio Between Technical Staffs and Total Staffs by Subject Area

SN	Sector of Employment	Total number of staffs	Technical Staffs		Remarks
			Number	Percentage of Total Staffs	
1	Agriculture	6427	2678.00	41.67	
2	Engineer	14361	7258.00	50.54	
3	Health	10040	5150.00	51.29	
4	Tourism	7663	4013.00	52.37	
5	Total	38491	19099.00	49.62	

The same comparison was also made as per the economic sectors. The proportion of technical staff to total staff is the highest in the Primary Sector and lowest in the Secondary Sector. The percentage of technical staff to total staff is 67.28% in primary sector whereas the corresponding figure of secondary and Tertiary Sector are 47.20% and 64.57% respectively. The detail figure is presented in the table 3.8.

Table 3.8: Ratio Between Technical Staffs to Total Staffs by Economic Sector

SN	Sector wise Distribution	Total Number of Staffs	Number of Technical Staffs	Percentage of Total Staffs to technical Staffs
1	Primary Sector	2320	1561.00	67.28
2	Secondary Sector	15978	7554.00	47.28
3	Tertiary Sector	20193	9984.00	49.44
4	Total	38491	19099.00	49.62

Likewise, comparison was also made between the technical staff and total staff as per the various employment units. In this classification, technical staff are in highest proportion in the Hotels & Resorts and lowest at the Travel/Trekking and Rafting agencies where corresponding proportion are 61.59% and 24.48 respectively. Similarly, the other sectors where the proportion of technical staff to total staff is relatively higher are in Education and Training Institutes, I/NGOs, Pharmacies, Polyclinic, Hospitals. The table 3.9 reflects the sub-sector wise proportion of technical staff in terms of total staff.

Table 3.9: Ratio Between Technical Staffs to Total Staffs

SN	Employment Unit Subsector	Total Staffs	Technical staffs	Percent
1	Bank and Financial Institutes	858	220.00	25.64
2	Industries	8965	4073.00	45.43
3	Cottage Industries	2544	1484.00	58.33
4	Contractor Agencies	6784	3290.00	48.50
5	Hospitals	6583	3189.00	48.44
6	Polyclinic/Pathologies	470	250.00	53.19
7	Pharmacies	635	354.00	55.75
8	INGO/NGOs	3840	2307.00	60.08
9	Education/Training Institutions	1374	827.00	60.19
10	Hotels/Resorts	4103	2527.00	61.59
11	Travel/Tracking/Rafting Agencies	2271	556.00	24.48
12	Agro-vet Centers	64	22.00	34.38
13	Total	38491	19099.00	49.62

3.1.8 Status of Business

Respondents were also asked about their perceptions on their last five years' business trends giving three alternatives- booming, status quo, and shrinking to choose one from. In aggregated figure, clear majority (53.2%) of employment units had mentioned that their business has boomed during the last five years. Unlike, performance of notable share (46.6%) of employment units were found not satisfactory. Every 28 in 100 employment units are in status quo during the last five years whereas almost 18% of employment units had seen the bad time of their business during the same period.

Table 3.10: Status of Business as per Sampling Strata

Sector of Employment	Employment Unit Sub-sectors	Status of Business in Last Five Years			Total
		Booming	Status Quo	Shrinking	
	Agriculture	136 (64.2)	50(23.6)	26(12.3)	212(100)
	Engineer	161(54.4)	69(23.3)	66(22.3)	296(100)
	Health	199(56.5)	111(31.5)	42(11.9)	352(100)
	Hospitality	94(37.8)	91(36.5)	64(25.7)	249(100)
	Total	590 (53.2)	321(28.9)	198(17.9)	1109(100)

If the corresponding proportion is compared among sectors and subsectors, it leads to draw some interesting conclusion. The proportion of employment units which were boomed during last five years' period was the highest (64.2.0%) in the Bank and Financial Sub-sector whereas the

corresponding figure is found significantly lower (37.8%) in the Tourism Sub-sector. This finding is dovetailed with our economic situation where banks and financial institution were expanded rapidly. Unlike the Banking and Financial Sub-sector, significant depletion of the hospitality business was observed in the economy in those days. The table below depicts the cross tabulation between the status of business and types of employment units.

Table 3.11: Status of Business as per Employment Unit Classification

SN	Types of Employment Units	Status of Business in Last Five Year			Total
		Booming	Status Quo	Shrinking	
1	Bank and Financial	17 (100)	0	0	17 (100)
2	Industries	62(56.9)	28(25.7)	19(17.4)	109(100)
3	Cottage Industries	153 (59.5)	69(26.8)	35(13.6)	257(100)
4	Contractor Agencies	30(35.7)	17(20.2)	37(44)	84(100)
5	Hospitals	35(67.3)	9(17.3)	8(15.4)	52(100)
6	Polyclinic/Pathologies	18(42.9)	19(45.2)	5(11.9)	42(100)
7	Pharmacies	83(53.5)	54(34.8)	18(11.6)	155(100)
8	INGO/NGOs	55(70.5)	17(21.8)	6(7.7)	78(100)
9	Education/Training Institutions	56(64.4)	22(25.3)	9(10.3)	87(100)
10	Hotels/Resorts	65(41.7)	54(36.6)	37(23.7)	156(100)
11	Travel/Tracking/Rafting Agencies	16(22.2)	32(44.4)	24(33.3)	72(100)
12	Total	590 (53.20)	321(28.94)	198 (17.85)	1109 (100)

Note: The figure in parenthesis indicates the row percentages.

If the proportion of employment unit that experienced boomed status during the last five years is further compared as per the sub categories of employment units, more meaningful conclusion can be drawn. Business status of Hotel/Resorts sub-groups is found comparatively higher than that of Travel/Trekking and Rafting Agencies. Only 22.2% of Travel/Trekking and Rafting Agencies mentioned that their status has boomed in the last five years whereas the corresponding figure of Hotel and Resort Sub-group is 41.2%. In this categorical analysis, 100% of bank and financial institutes, 70.5% of I/NGOs, 64.4% of Education and Training Institutes and 59.5% of cottage industries have mentioned sound business status in the last five years.

This finding is more or less similar with the sectoral growth rate of economy, where every sub-sector has been witnessing the growth rate of below average in the last decade. The growth rate of agricultural sector mostly depends upon the seasonal rainfall, it is therefore not logical to analyze it associating with the HR need. In the contrary, employment need of the rest of economic sub-sectors depends upon economic environment of the country or economic growth rate. In conclusion, the lack of quality and quantity of technical HR must be one of the responsible factors behind such disappointing performance of these sub-sector.

If their status again compared among the occupational sub-sectors, the proportion of responses mentioning the boomed status was highest (70.5%) in the I/NGOs sub-group whereas the corresponding proportion was the lowest in the tourism related enterprises including travel, trekking and rafting agencies (22.2%) and Hotel and Resorts (41.7%).

Table 3.12: Business Status as per Employment Unit

Occupational Sub-sectors	Status of Business in Last Five Year			Total
	Booming	Status Quo	Shrinking	
Agriculture	59 (62.8%)	21 (22.3%)	14 (14.9%)	94 (100%)
Automobile	3(100%)	0	0	(100%) 3
Computer	22 (61.1)	9(25)	5(13.9)	36 (100%)
Construction	41(36.6)	27 (24.1)	44 (39.3)	112 (100%)
Construction Equipment	10(55.6)	2 (11.1)	6(33.3)	18(100%)
Electrical	3(75)	1(25)	0	4(100%)
Electronics	26(63.4)	8 (19.5)	7(17.1)	41(100%)
Forestry	0	2(100)	0	2(100%)
Handicraft	10(71.4)	2(14.3)	2(14.3)	14(100%)
Health	181(55.2)	107(32.6)	40(12.2)	328(100%)
Hospitality Industry	91(37.3)	91(37.3)	62(25.4)	244(100%)
Leather Goods and Products	3(75)	1(25)	0	4(100%)
Mechanical	9(75)	3(25)	0	12(100%)
Mountaineering	0	0	1(100)	1(100%)
Others	67(63.8)	28(26.7)	10(9.5)	105(100%)
Service	56(70)	17(21.2)	7(8.8)	80(100)
Tailoring /Garments	6(85.7)	1(14.3)	0	7(100%)
Textile	3(75)	1(25)	0	4(100%)
Total	590(53.2)	321(28.9)	198(17.9)	1109(100%)

3.1.9 Responses on Future Growth Potentials

Respondents are also asked about the future prospects on their business. In the response, comparatively larger proportion of respondents are found optimistic on the future of the business. Significantly large (61.7%) proportion of respondents have hoped that their business would be boomed in the future. Unlike, some 31.3% didn't expect any remarkable improvement in their business. Although the figure is insignificant, some 7.4% of employment units are also found completely pessimistic about their business in future. (Please refer Table 3.13)

Table 3.13: Probable Future Status of Business

SN	Sector of Employment	Possible Status of Business within Next Five Years			Total	
		Booming	Status Quo	Shrinking		
1	Sector of Employment	Agriculture	158(64)	66(26.7)	23(9.3)	247(100)
2		Health	276 (69.3)	106 (26.6)	16 (4.0)	398 (100)
3		Engineer	226(58.9)	129(33.6)	29(7.6)	384(100)
4		Hospitality	163(51.7)	120(38.1)	32(10.2)	315(100)
5	Total	823(61.2)	421(31.3)	100(7.4)	1344(100)	

The corresponding figure varies as per the sector of employment. In the disaggregated analysis, the employment units under health sectors (69.3%) were found more optimistic about the future

of their business however enterprises related to tourism are still in lower level (51.7%). In the engineering sub-sector, 58.9% of employment units saw good future of their business where as the corresponding figure of Agriculture and Tourism sector is 64% and 51.7%. The figure in the table 3.13 shows detail breakdown.

Table 3.14: Probable Status of Business as per Economic Sector

SN	Employment Sector	Possible Status of Business for Next Five Years			Total	
		Booming	Status Quo	Shrinking		
1	Economic Sector	Primary Sector	52(61.2)	21(24.7)	12(14.1)	85 (100)
2		Secondary Sector	177(54.6)	120(37)	27(8.3)	324(100)
3		Tertiary Sector	594(63.5)	280(29.9)	61(6.5)	935(100)
4	Total		823(61.2)	421(31.3)	100(7.4)	1344(100)

If the future expectancy in terms of the status of their business is compared as per the economic sector, it is found the lowest in the secondary sector that is industries and the tertiary sector stands at the highest level. The 61.2% of employment units of tertiary sector expected their future status boomed, where as only least proportion (6.5%) of them mentioned their disappointment for future. Similarly the corresponding figure of the respondents that expect continuation of present trend also in the future are 24.7%, 37%, and 29.9% respectively of primary, secondary and tertiary sector.

Table 3.15: Probable Status of Business as per Sampling Strata

SN	Employment Unit Sub-sector	Possible Status of Business for Next Five Years			Total	
		Booming	Status Quo	Shrinking		
1	Employment Unit Subsector	Bank and Financial	15 (68.2)	7(31.8)	0	22(1000)
2		Industries	75(48.7)	63(40.9)	16(10.4)	154
3		Cottage Industries	194(66.4)	77(26.4)	21(7.20)	292 (100)
4		Contractor Agencies	67(64.4)	28(26.9)	9(8.7)	104(100)
5		Hospitals	45(78.9)	12(21.1)	0	57(100)
6		Polyclinic/Pathologies	33(67.3)	11(22.4)	5(10.2)	49(100)
7		Pharmacies	117(69.2)	44(26)	8(7.4)	169(100)
8		INGO/NGOs	64(63.4)	31(30.7)	6(5.9)	101(100)
9		Education/Training Institutions	66(60.6)	38(34.9)	5(4.6)	109(100)
10		Hotels/Resorts	105(54.4)	68(35.2)	20(10.4)	193(100)
11		Travel/Tracking/Rafting Agencies	42(44.7)	42(44.7)	10(10.6)	94(100)
12	Total		823(61.2)	421(31.3)	100(7.4)	1344(100)

Generally, the sectors which experienced and expected booming of the business suggested that they would require more number of human resources whereas opposite might be the suggestion of shrinking. The business which reported status quo in their business are neither hiring any more staff nor making their staff redundant. In an average situation, it can be concluded that the difference of proportion of employment units reported booming status to proportion reported

shrinking status requires more staff in the future. In this line of reasoning, 53.8% of employment units are hiring more staff in the future. (Conclusion in disaggregated terms can be made accordingly.)

The answer of the respondents in the past status was also tried to be compared with the future status. Among the 590 (43.89%) of employment units which mentioned booming status in the last five years, large majority 515 (87.3) are found extra hopeful about the future. Whereas some 9.5% are expecting the continuation of past trends in the future. Similarly, 19 (3.2%) EUs out of 590, are pessimistic about the future despite their sound business status of the past. Out of the 198 employment units which experienced shrinking status in last five years business, 54% are also hopeful about their future. Employment units which experienced shrinking status in their business were seemed optimistic about the future however, the employment units which observed status quo in the past are also expecting the continuation in future.

Table 3.16: Cross-tabulation between Past Status and Future Expectation

SN	Observed Past Status	Expectation about Future			Total
		Booming	Status Quo	Shrinking	
1	Booming	515(87.3)	56(9.5)	19(3.2)	590(100)
2	Status Quo	201(36.2)	329(59.2)	26(4.7)	556(100)
3	Shrinking	107(54)	36(18.2)	55(27.8)	198(188)
4	Total	823(61.2)	421(31.3)	100(7.4)	1344 (100)

3.1.10 Demand of Skilled Workers

A company can be taken as a symbolic labour market where large number of labours come to join the job and remarkable numbers also exit from it. If a company hires more staff than the number made redundant in the same period, it depicts the increasing demand of that particular occupation and decreasing demand may be the suggestion of opposite situation. In this line of thinking, a question was asked about the occupation and their respective numbers which either enter or exit within the last 12 months from the particular employment unit to know about the most demanded occupations.

The production system is associated with productivity which is the function of performance of labour and capital. Expansion of capital investment is not possible in the short run, so engaging more labour is only the way to expand the business in the short run. Thus labour is a crucial measure to expand the business or industries.

The data of recruited staff as well as the staff made redundant from the job are therefore taken as the major signals for the demand of the workforce. Out of the 1344 employment units, only 540 employment units reported that they have recruited some staff during the last 12 months. Similarly, 525 employment units reported that they have made some staff redundant from the jobs. If this figure is compared as per the occupations, hospitality industry emerged as the highest staff recruiting sectors. During the analyzed period, 193 employment units under hospitality industry hired 447 new staff since 474 staff were also made redundant from the jobs by 220 employment units. Similarly, 370 staff were hired by 132 employment units in health sub-sector where as only 214 employees were made redundant from the jobs by 103 employment units of the same sector. In this way, Hospitality Sector can be taken as the shrinking sector in the analyzed period whereas health sector can be taken as booming sector.

If we compare the figure of hired staff with the staff made redundant, Agriculture, Computer, Construction, Electronics, Health, Service, Tailoring and the occupations under others category have recruited more numbers of staff than numbers made redundant from the job. Unlike, Automobile, Construction Equipment, Hospitality Industry and Mechanical sectors made more staff redundant from the job than the numbers that were hired. Although, Construction Equipment, Automobile and Mechanical Occupations were considered as the demanded occupational sectors, the impact of earthquake and fuel crisis in the last few months is the major responsible factors for getting opposite responses from this survey.

Table 3.17: Comparative Figure of Recruited and Redundant Staffs

SN	Occupational Subsector	Recruited Number		Number Made Redundant	
		Employment Unit	Recruited Number	Employment Unit	Redundant Number
1	Agriculture	48	157	46	151
2	Automobile	9	16	9	20
3	Computer	18	32	15	25
4	Construction	26	77	22	55
5	Construction Equipment	2	6	4	15
6	Electrical	1	1	1	1
7	Electronics	9	19	9	14
8	Handicraft	10	28	9	34
9	Health	132	370	103	214
10	Hospitality Industry	193	447	220	474
11	Leather Goods and Products	1	2	1	2
12	Mechanical	16	34	15	40
13	Mountaineering			1	1
13	Others	37	200	36	166
14	Service	33	125	30	61
15	Tailoring /Garments	5	7	4	5
16	Total	540	1521	525	1278

If the same figure of redundant staff is compared to recruited staff as per the occupation, Waiter/Waitress emerged as the job with highest recruitment. In the analyzed period, 138 waiters were recruited by 56 employment units where as 140 waiters were also made redundant from the job from 64 employment units. Staff Nurse ranked in a second highest position in this comparison. 138 staff Nurses were found recruited from 19 employment units where 88 staff nurses were also made redundant from job from equal number of employment units. The Table 3.2 gives the comparative figure between recruited number and redundant number as per the various occupational category.

Table 3.18: Comparison between Redundant Number and Recruited Number

SN	Name of occupation	Recruited Number		Redundant Number	
		Employment Unit	Employees	Employment Unit	Employees
1	Waiter	56	138	64	140
2	Staff Nurse	19	107	19	88
3	Administration	3	73	3	7
4	Labour	7	67	9	89
5	H.A.	14	63	6	8
6	Housekeeper	23	63	22	57
7	Cook	31	61	35	77
8	CMA	18	47	16	46
9	Mechanic	10	42	7	38
10	ANM	14	41	11	33
11	Field Guide Tourist	4	31	1	1
12	Beautician	19	29	15	20
13	Helper	17	28	17	27
14	B.P.H.	2	25		0
15	Production Operator	5	25	6	29
16	IT	1	25		0
17	Social Mobilizer	6	25	4	10
18	JTA	5	22	3	6
19	Receptionist	13	21	13	19
20	Technician	4	21	2	14

While comparing the same figure among other occupations, Housekeeper, CMA, General Mechanic, ANM, Beautician, Social Mobilizer, Receptionist, Technician, Pharmacist are some representative jobs, of which recruited number was significantly greater than the number made redundant. In the contrary, Waiter, General Labour, Cook, Production Operator, Front Office. are those representative jobs which have greater number of redundant staff than that recruited during the same period of time. The top twenty positions as per the number of recruits and corresponding number made redundant are depicted in Table 3.18.

3.1.11 Perception Level on Supply Status of Workforce

To know the experience of employment units regarding the availability or scarcity of skilled workforce in the labour market, a question was asked them regarding the supply status of workforce that are direly needed in their employment units giving three alternatives to choose from - oversupplied, moderate supply and under supply. Among the total 1344 employment units surveyed, only 81.5% of respondents responded this question. Significant number of respondents (37.9%) expressed that there was oversupply of human resources as per the need of their enterprises. Unlike, notable number of employment units (26.9%) were also expressed that the supply of the workforce was at the moderate level whereas 16.7% respondents realized the undersupply status of workforce in the labour market. The table below reflects the total distribution of respondents.

Table 3.19: Respondents' Perception Regarding the Supply Status

SN	Status of Technicians	Frequency	Percent	Valid Percent	Cumulative Percent
1	Over Supplied	510	37.9	37.9	37.9
2	Moderate Supply	361	26.9	26.9	64.8
3	Under Supplied	225	16.7	16.7	81.5
4	No Idea	248	18.5	18.5	100.0
5	Total	1344	100.0	100.0	

If this supply status is compared as per the occupational classification, only minority of the agriculture related employment units (25.8%) reported that there is undersupply of technical human resources in their field whereas corresponding figure of health sector is (11.2%). As per the perception of owner of the employment units, occupational sectors such as Services, Construction and Construction Equipment and the employment units categorized as others categories, were the sub-sectors where shortage of skilled workforce were comparatively higher. Unlike the above mentioned occupational sub-sectors, Hospitality Industry, Handicraft and Mechanical are the sub-sector where supply of skilled workforce is comparatively limited. The Table 3.20 depicts the detail figure on the supply status of respondents as per the occupational category.

Table 3.20: Status on Availability of Skilled Workforce

SN	Occupational Category	Status on Supply of Technical Human Resources				Total
		Over Supplied	Moderate	Under Supplied	No Idea	
1	Agriculture	24(19.4)	38(30.6)	32(25.8)	30(24.2)	124(100)
2	Automobile	2(20)	0	1(10)	7(70)	10(100)
3	Computer	18(36)	9(18)	6(12)	17(34)	50(100)
4	Construction	53(37.6)	40(28.4)	18(12.8)	30(21.3)	141(100)
5	Construction Equipment	7(36.8)	8(42.2)	3(15.8)	1(5.3)	19(100)
6	Electrical	1(20)	3(60)	0	1(20)	5(100)
7	Electronics	15(32.6)	19(41.3)	7(15.2)	5(10.9)	46(100)
8	Forestry	0	2(100)	0	0	2(100)
9	Handicraft	5(26.30)	6(31.6)	3(15.8)	5(26.3)	19(100)
10	Health	194(51.9)	92(24.6)	42(11.2)	46(12.3)	374(100)
11	Hospitality Industry	104(33.9)	70(22.8)	59(19.2)	74(24.10)	307(100)
12	Leather Goods and Products	2(50)	0	2(50)	0	4(100)
13	Mechanical	2(8)	4(16)	6(24)	13(52)	25(100)
14	Mountaineering	0	1(100)	0	0	1(100)
15	Others	46(37.7)	36(29.5)	25(20.5)	15(12.3)	122(100)
16	Service	34(41)	25(30.1)	20(24.1)	4(4.8)	83(100)
17	Tailoring /Garments	1(12.5)	6(75)	1(12.5)	0	8(100)
18	Textile	2(50)	2(50)	0	0	4(100)
19	Total	510(37.9)	361(26.9)	225(16.6)	248(18.5)	1344(100)

If supply status is compared as per the development region, large majority (71.7%) of employment units of Central Development Region mentioned that there was oversupply of technical human resources which was followed by Kathmandu Valley (46.2%). Similarly, the proportion of employment unit of Mid-western Development Region, Eastern Development Region and Western Development Region that mentioned the oversupply status were 28.1%, 31.1% and 18.7% respectively, But majority of employment units of far western development region expressed that they had not any idea regarding the issue.

Table 3.21: Supply status of Technical HR

Development Region	Supply Status of Technical HR				Total
	Over Supplied	Moderate	Under Supplied	No Idea	
EDR	52 (28.1)	85(45.9)	40(21.6)	8(4.3)	185 (100)
CDR	180(71.7)	44(17.5)	23(9.2)	4(1.6)	251 (100)
Kathmandu Valley	141(46.2)	82(26.9)	47(15.4)	35(11.5)	305 (100)
WDR	66(18.7)	62(17.6)	46(13)	179(50.7)	353 (100)
MWDR	52(31.1)	53(31.7)	40(24)	22(13.2)	167(100)
FWDR	19(22.9)	35(42.2)	29(34.9)	0	83 (100)
Total	510(37.9)	361 (26.9)	208(16.7)	248(18.5)	1344 (100)

3.1.12 Satisfaction Level of Workforce

The respondents of the employment units were also asked about the satisfaction level of their employees. Since the employment units have single employee or are family run business, the question was not found applicable as a result it was found applicable to only 1098 employment units out of 1344. While responding this question, majority of respondents (76.8%) mentioned that the performance level of employees was satisfactory. Likewise, 17.8% expressed as good and 2.7% expressed as poor. The Table 3.22 gives the detail distribution of the respondents.

Table 3.22: Perceptions on Satisfaction Level of Employees

SN	Satisfaction Level	Frequency	Valid Percent	Cumulative Percent
1	Extremely Poor	2	0.2	0.2
2	Poor	30	2.7	2.9
3	Satisfactory	843	76.8	79.7
4	Good	195	17.8	97.4
5	Excellent	28	2.6	100.0
6	Total	1098	100.0	

3.1.13 Potential Innovation

Respondents were also asked about the potentiality of innovation in their sector in future. The small percentage of respondents answered this question. Among the respondents who answered this question, most of them mentioned the name of specific type of machines or online computer system in their business which were Digital machine, ECG and X-ray machine, Laboratory Machine, Computerized Software, Panting Machine, RNP technology. Their answer suggested that human resources they required must be aware with the new technology in their respective field.

3.2 Qualitative Approach

This chapter has been designed to illustrate the qualitative information collected from the selected organizations associated with different professions within the valley and districts. With the checklist, the identified respondents within the valley and in the selected districts throughout Nepal were contacted, discussed, interviewed and information/ data were collected. The collected data were analyzed in tabular forms and attached along in Annex 2A-7. Based on the data tabulated and presented, the findings of study have been written.

3.2.1 National demand of workforce in Nepal

Nursing sector as responded by the key informant is almost oversupplied. There is not a system to record data of the demand and employment opportunity of nursing workforce. No national projection is there how many skilled professionals are required for future. Production and consumption of nursing graduates are being done on a random basis. The health sector other than nursing provides a different picture. There is the demand of health professionals by 35% in formal and 65% in informal sector in the local market whereas they are demanded by 40% in formal and 60% in informal sectors of the national markets. Hotel sector was one of the areas where study tried to explore the demand of skilled workforces and potential employment opportunities. The key informant reported that hotel business was shrinking day by day and it is difficult to accommodate the existing employees in the sector. The sector is dominant with informal opportunities. Tour and travel sector is also covered by informal sector and demands differ from region to region because tourism activities do not take place in the same manner. Trekking business is another area considered by the study and found out that 90% activities and demand and employment opportunities fall in informal sector. There is no database system within information and telecommunication fields since most of activities have been accomplished through contract awards. The respondents from trade unions, Federation of Construction Association and Federation of Nepal Chamber of Commerce and Industry pointed out that there were hues and cry of unemployment in the country but when time comes to hire skilled workers it was difficult to find such workers. There is mismatch between graduates of training programs and employment opportunities available in the labor markets. The mismatch between demand and supply could be due to absence of proper training needs assessments, untrained instructors, traditional supply driven courses, traditional approach of training delivery, less opportunities of practical exposure and proper system for career guidance and counseling.

There were other questions used during interviews to find out different information in relation to demand of skilled workforce and employment opportunities in local as well as national levels of both formal and informal sectors. The key informants responded that there was oversupply in nursing occupation, no national projection of the requirement of human resources and government sector is saturated. More opportunities are there in private sector but they have to work with nominal facilities. More people undergo nursing education and training for foreign employment. Health workers other than nursing graduates who have occupational license are directly or indirectly found employed except Community Medicine Assistant (CMA). CMAs are also saturated in terms of employment opportunities. Hotel business has also been shrieked due to various reasons and has less than 5% opportunities for new comers in the sector. In other sectors such as trekking, travel and tourism, agriculture, construction, there is demand of skilled workers but quality training should be the prerequisite. Most of the employment sectors are being hampered due to the attraction of youths going for foreign employment. Agriculture and livestock are

dominant sector which demand huge number of skilled workers both in formal and informal set ups.

Construction/ Engineering sector has been growing satisfactorily in terms of building construction in the public and private sectors, private homes, real estate development, and government offices in the Kathmandu valley and other urban areas. The trend of the growth rate points out that construction is one of the prime sectors for Nepalese economy, at least for several years in future. Industry being the biggest sector contributing to GDP has its normal growth. It has 7.1 percent contribution to GDP though it has a very slow growth rate due to load shedding and many other reasons. There is no other option unless to develop this sector to shift the economic development from agriculture to industry. The demand of skilled workforce in the sector is in increasing trend. Agriculture is being the largest sector contributing to GDP and is the sector where mostly farmers who are less educated, trained and productive, engage in. This sector provides greater number of employment but it needs further improvement and development to attract trained and educated people to adopt agriculture a complete profession for better life.(See Annex 2A & 2B)

3.2.2 District wise Responses obtained through checklist interview

The key informants of selected organizations of selected districts were interviewed applying the same checklist used in the Kathmandu Valley. The findings of the survey have been presented district wise as follows:

Dang District

The key informants of various organizations as selected for sample were interviewed and the informants responded that there were high demands of skilled workforce both in the local and national labor markets. Skilled workers are not easily available and training opportunities are also limited in the district. More skilled workers are demanded in agriculture and construction sectors. Similarly, hotel business also demands skilled workers such as cook and waiter/ waitress. The demand of skilled workers will be increased by 5% to 100% in next five years. Due to the attraction of foreign employment, it is difficult to find skilled workers. Skilled workers come in from adjoining districts and also from India. Informal sector demands and consumes more skilled workers than by the formal sector. It is almost 70/30 in percentage in terms of informal formal sector wise opportunities. (See Annex 8; Table 8.1)

Shankhuwashabha District

The respondents of Shakhuwashabha district responded that the demand of skilled workers is normal in the local market. More employment opportunities are prevail in informal sector. 60% opportunities are there in informal sector where as only 40% opportunities can be observed in the formal sector. Skilled workers come from outside of the district. Skilled workers cannot be found easily. The employment opportunities will be increased by 50% in the next five years. The new areas of demands are mason, carpenter, plumber, and electrician and mostly demanded are the laborers. Responses differ from individual to individual informant. Overall, there is demand of skilled workers both in local and national markets (See Annex 8; Table 8.2).

Kavreplanchok District

Kavreplanchok district has no industries. Hotels and restaurants are popular there but due to the national scenario, hotels and restaurants are being compelled to reduce their employees. The district has well progressed through NGOs/INGO and CBOs. Such organizations are not getting proper skilled workers. Agriculture is another prominent area in the district where more skilled

workers are in demand. Employees of health institutions come to the district from other districts. In an overall situation, there is less employment opportunities and less demand of skilled workers except in agriculture sector (See Annex 8: Table 8.3).

Dolakha District

There is high demand of skilled workers both in the local and national labor markets as the key informants of Dolakha district responded. NGOs and INGOs are functional in the district and such organizations consume more skilled workers. Hotel restaurants are other areas where more skilled workers are demanded and employed. There are training institutions in the district and the graduates produced by such institutions are employed in other districts as well. There are hydro projects in the district and many more skilled workers are demanded by such projects. There are no industries but if there will be stability in the country, there will be possibility of industrial development and demand of skilled workers in future (See Annex 8: Table 8.4)

Sindhupalchowk District

The key informants of Sindhupalchowk district were interviewed to identify the labor market situation of skilled human resources in terms of employment opportunities and demands of such workers. The respondents were not found very much optimistic since most part of district is remote and badly hit by the devastating earthquake 2072. Many people have left the district due to natural terror and also to hunt future fortune. Many NGOs and INGOs have been functional in the district and they consume mostly the skilled workers. Future demand of skilled workers is also not exciting due to the slow growth of industries in the district. There is demand of skilled workers in construction for reconstructing the infrastructure destroyed by the earthquake. Skilled workers are not found easily in the district. Therefore, the district as a whole found with scarcity of skilled workers and thus, opportunity for human resource development (See Annex 8: Table 8.5).

Siraha District

The key informants of Siraha district responded that there were high demand of skilled workers both in local and national level labor markets. Brick ply and agriculture industries consume more skilled workers. More people engage in informal sector due to employment opportunities. No skilled workers are available in the districts. Skilled workers come from adjoining districts and also from India. Labor with skills are demanded by the local market because employers can get benefit from an individual as a labor and technician (See Annex 8: Table 8.6).

Sarlahi District

The key informants of Sarlahi district pointed out that there were high demand of skilled workers in the district. Skill workers are not available easily. Informal sector of the district is promising in terms of employment opportunities. Similarly, agriculture and construction are the prominent sectors for consuming the skilled workers. Industries are also growing and demand skilled workers. As a whole, the district demands skilled workers of various occupations (See Annex 8: Table 8.7).

Morang District

The key informants of highly industrialized district Morang were found reluctant in terms of skilled workers. Industries are at the verge of collapse due to various reasons such as Terai strike and load-shedding. They said that the industrialists had problem to maintain their existing employees. Therefore, there is no demand of skilled workers in the local market; however others

claimed that there were demands at the local market as well. Agricultural technicians are highly demanded. Skilled workers of such sectors are not easily available. Informal sector of the district has more employment opportunities and consumes more skilled workers. The employers hire trained workers by training institutions and also from open market. Workers of health and mechanical related occupations were in high demand in the district. Similarly, metal fabricator, house wiring, plumbing and beauticians are with medium demand and skilled workers being involved in handicrafts are least demanded. Even in Morang, informal sector is stronger and offers more employment opportunities. Employment opportunities will be increased in the district by 20% in the next five years (See Annex 8: Table 8.8).

Udayapur District

The key informants in interview said that there were no demands of skilled workforce. The respondents have mixed opinions. 50% of them said that there were the opportunities of skilled workforce in both local and national labor markets. Informal opportunities are stronger in the district 40-80% employment opportunities are there in the informal sector. Masons, carpenters, electricians, plumbers, lab assistants. Engineers, overseers, sub-overseers and the technicians needed to agriculture and construction sector. (See Annex 8: Table 8.9).

Ilam District

Ilam district is observed with many opportunities in terms of employment of skilled workers. Opinions are divided in terms of availability of skilled workers. There are 60% employment opportunities in formal and 40% in informal sectors. Engineers, agriculture technicians, cooks, waiter/waitress, bellboy, and tea technicians are in demand. There are employment opportunities in the district if people are prepared accordingly (See Annex 8: Table 8.10).

Jumla District

The key informants of Jumla were asked about the situation of skilled workers, employment opportunities and future trend of employment in the district. There is not much demand of workforce both in formal and informal sectors. Skilled workers are available. There is a nominal demand in informal sector. Herbal processing has the future scope in Jumla (See Annex 8: Table 8.11).

Parsa District

The key informants of Parsa district were asked about the situation of skilled workforce. The informants responded that there were high demand of skilled workforce in the district both in the local and national labor markets. After provincial set up, huge number of skilled workers will be demanded in both formal and informal sectors. By next five years, there will be 50% demand of skilled workers in the district. The employers hire their employees through advertisement. They responded that they found their employees with quality training. Doctors, pharmacists, nurses, engineers, computer operators, paper bag makers are some of the professions which are in demand in the district (See Annex 8: Table 8.12).

Surkhet District

The key informants of Surkhet district were interviewed about the situation of workforce, employment opportunities and future employment trend. The informants responded differently. Skilled workers with latest skills of technology are in demand. Agriculture, herbal processing,

tourism demand more skilled workers. Informal sector has more employment opportunities. By five years, employment opportunities will be increased up to 200% in the district. Workers come to the district from adjoining districts and even from India. Cement industry, Upper Karnali Hydropower and hotel restaurants will demand more skilled workers in future (See Annex 8: Table 8.13).

Palpa District

The key informants of Palpa district representing various institutions were asked about the situation of skilled workers in the local and national markets of formal and informal sectors. For coffee production there are sufficient workers and even no scope of future demands. Agriculture technicians are in demand for vegetable productions. Skilled workers are needed for tunnel and green house construction. No market for ginger production but there are high demands of workers for cottage industries. There is higher rate of turnover of the skilled workers in the district. Construction sector needs more skilled workers but it is very difficult to find properly trained people (See Annex 8: Table 8.14).

Rupandehi District

The selected informants of Rupandehi district were asked about situation of skilled workers of local and national markets of formal and informal sectors. NGOs of the district need skilled workers. Skilled Workers are not easily found due to foreign employment attraction. No agencies are there to connect workers to employment. More Indian workers are working in the district. Over 70% employment opportunities are there in informal sector. Workers are oversupplied in hotel and restaurant businesses. CTEVT trained graduates are there in the market and they are of quality competence but they need more practical exposure. The occupations in demand are management, tailoring, veterinary, proposal/report writing, NGO management, cooperative, sanitation and pump operator (See Annex 8: Table 8.15).

Kailali District

The selected informants of Kalali district were asked about situation of skilled workers of local and national markets of formal and informal sectors. NGOs of the district need skilled workers. Skilled Workers are not easily found due to foreign employment attraction. More Indian workers are working in the district. Over 70% employment opportunities are there in informal sector. Workers are oversupplied in demanded professions. CTEVT trained graduates are there in the market and they are of quality competence but they need more practical exposure. (See Annex 8: Table 8.16).

Pyuthan District

The key informants of Pyuthan district were asked about the situation of skilled workers, employment opportunities and future trend of employment in the district. There is not much demand of workforce both in formal and informal sectors. Skilled workers are available. Agriculture and vegetable production have future scope in the district..

3.3.3 Employment opportunities in Formal and Informal Sectors

There is 5-10% opportunity of nursing graduates in the formal sector and more opportunities in the informal sector. 70% opportunities are available in the formal sector for health professionals whereas 30% prevail in informal sector. Hotel business consumes 95% workforce in formal setup and only 5% in the informal businesses. Similarly, tour and travel offers 70% opportunities in

formal and 30% in informal sectors. Likewise, trekking sector provides 70% employment opportunities in the informal sector just opposite to travel and tourism areas. Telecom and electricity sectors offer 80% opportunities for informal employment. Similarly, Trade unions and other key informants of different agencies said that informal sectors offered more employment opportunities and demanded skilled workforces in the country. Middle level skilled workers and professionals are acutely shortage in agriculture which is the biggest sector of employment in Nepal. (See Annex 2C)

3.3.4 Speculation for Future Demand

The key respondents within the valley responded about growth trend of the demand of skilled workers for the next five years. The responses of the informants varied from one individual to other. There is no projection for nursing workforce where as health related skilled workers will be demanded by 10% in the formal sector and 5% in the informal sector. Hotel business will demand by 30% and 10% in formal and informal sectors respectively in the next five years in a condition if the proposed star hotels will come in operation. Similarly, tour and travel agencies will demand skilled workers by 15% in formal and 5% in informal employment during the next five years. Likewise, trekking business will demand skilled workers by 15% and 30% in formal and informal employment opportunities. Tele Communication and electricity sectors also need skilled workers but they can not speculate any number since most of activities are accomplished through outsourcing consulting and contracting vendors. Trade Unions and other professional organizations responded that formal sector would demand skilled workers from 5% to 50% and informal sector will demand skilled workers in the same percentage. Similarly, There is already a shortage of skilled middle level technicians and found more than 1500 vacant posts in formal sector of agriculture. 20-30% employment will be created in agriculture by next five years. Similarly, construction business has big contribution to national GDP which demands 30-40% skilled workforce by next five years. If situation remains stable industry and commerce will demand 50% skilled workforce by next five years. There are other sectors such as small hotel business, cottage industries and a complete informal sector which demand separate but comprehensive studies. (See Annex 6).

1. Availability of skilled workforce

The key informants of Kathmandu valley of 14 organizations were asked whether the skilled workers were easily available. The informants had different opinions. Nursing and hotel business sectors are oversupplied by skilled workers and it was difficult to accommodate the workers working for years. Tour and travel and trekking agencies said that they did not find the workers easily whenever, they needed. Their businesses depend on seasons and there is no system to hire skilled workers. Nepal Telecom and Electricity Authority have different situation. They outsource the vendors for the accomplishment of their projects. Therefore, the vendors should have such information whether they find skilled workers or not (a separate study reaching to such vendors needed). Trade Unions and other professional organizations responded that the skilled workers were not easily available. Construction sector has huge demand of skilled workers. Similarly, skill upgrading courses of electrical technicians are in demand Lower level skilled workers are easily available but the study pointed out that there were 1500 vacant posts for JT/ JTA in Ministry of Agriculture and Government recently declared that Agriculture Technicians would be deputed in even ward level which would demand high number of such technicians in future. Similarly, there are 60 vacant posts of technicians in NARC. Likewise, construction sector within Engineering has huge potentialities and skilled workforce such as Mason, Carpenter, Plumber, Electrician,

Tile/Marble Fitter, Plasterer, Painter, Gabon Ware Maker, Scaffolder, Aluminum, Welder, Bar Bender etc are in demand . This sub-sector is also not free of problems. Employment opportunities have been created for the dry season which also supports to underemployment situation in the country. (See Annex A: Table 4).

The key informants of the Kathmandu valley were asked about the skilled workers they hired produced by the universities or institutions. They responded that the institutions were as: Council for Technical Education and Vocational Training (CTEVT), Institution of Medicine, B.P. Koirala Institute of Health Science, Karnali Health Academy, National Academy for Hotel and Tourism Management, Labor Training Centre, Department of Cottage and Small Industries, Cottage and Small Industry Board, public and private institutions affiliated to CTEVT and also from foreign universities (See Annex 5).

3.3.5 Demanding and Emerging Occupations

The key informants of the Kathmandu valley were asked about occupations in demand and emerging occupations and the projected number of skilled workers they need to hire in their organizations. None of the respondents could answer the projected number of skilled workers since there is not a system to plan and project the workers in any organization of Nepal. The informants responded the occupations in demand and even emerging demand areas as follows:

- Nursing profession: BSC/BN Nurse, M.SC/MN Nurse
- Health profession: Radiographer, Ophthalmic Assistant, Dental Hygienist, Acupressure..., Aayurved, Lab, Pharmacy etc \
- Hotel Business: Waiter/waitress, Housekeeping, Cook, Assistant Manager, Manager, Chef, Front Desk, supervisor, Bellboy
- Tour and travel business: Ticketing, Marketing, Tour operator, Tour guides
- Trekking Business: Porter, Porter guide, Trekking guide, Mountaineering guide
- Telecom profession: Fiber/optical Cable Installation, GSM Installation, Air-conditioning and generator maintenance, IT technicians, Repair and maintenance technician
- Electrical profession: Ladder Carrier, General Electrician, Building Electrician, Industrial Electrician, Installation, Connection, Repair and maintenance Technician, Skill Upgrading courses
- Other Occupations: Mason, Carpenter, Scaffold, Electrician, Plasterer, Tile/marble fitter, Painter, Plumber, Tailor, Beautician, Embroidery, Handicrafts, Security guards, Sales boys/girls, Aluminum fitter, Heavy equipment driver, Workers related to Forestry, Manufacturing industries, Processing Industries, Fertilizer industry, Herbal processing, and Arts and crafts (See Annex 6).

3.3.5 Quality of skilled workers or skill gap

The key informants of the Kathmandu valley were asked about the training quality of graduates when they recruit as skilled workers. Most of the informants responded that the graduates were of quality skills, however, more practical exposure during training should be provided. the elective subjects in the curriculum should be added so that the graduates would have wider opportunities of employment. 10% of respondents said, quality is missing due to the negligence of training institution. 15% of them said, trained are not getting employment but untrained are occupying the positions due to the lack of proper system. Many youths are flying to overseas for employment on

one hand; on the other hand there are no workers available in the labor market. There is a kind of mismatch between employment requirement and skills acquired by trained graduates. No informant was in a position to point out the skills gap in their employees except Electricity Authority which demanded skill upgrading training for their working officials. Although respondents were not in a position to point out the skill gaps, 90% of them responded that training graduates needed more skills and knowledge to perform their responsibility in the job placement. They have suggested that the duration of training should be from six months to less than one year in the following occupations: (See Annex 7)

-
- | | |
|--------------------------------|---|
| • Herbal Processor | • Travel/Tour Guide |
| • Automobile Technician | • Advance Tailor |
| • Welder | • Industrial Electrician |
| • Construction Supervisor | • Micro-Hydro Technician |
| • Community Livestock Worker | • Organic Crop Farmer |
| • Community Agriculture Worker | • Medical Equipment Repair/Maintenance Technician |
| • Seed Producer | • Ref. and AC Technician |
| • Web Designer | • Social Mobilizer |
| • Small Hotel Manager | • Physio-therapist |
-

3.3 Interaction Program among Stakeholders

An interaction program was organized on April 5, 2016 at Alpha House, New Baneshwor which was participated by various representatives from development related ministries, professional councils, associations, federations and free lance researchers from TVET Sub-sector to discuss upon the draft report (List of participants is attached in Annex 12). The vice-chairperson of CTEVT Dr. Kul Bahadur Basnet has chaired the program. Appropriate feedbacks obtained during the floor discussion were incorporated while finalizing the report. The participants were also brainstormed for half an hour in to four groups and discussed upon the emerging and demanding occupation they are related with. Perceptions of the respondents in the feedback session as well as output of the group work is synopsisized hereafter under four different topics -Agriculture, Engineering, Health and Hospitality.

3.3.1 Agriculture

Majority of participants' participated in the group work and they mentioned that middle level agriculture related technicians are in demand not only in formal private sector but also in public sector because of the additional post of Agriculture and Livestock technicians created in service center at VDC level. Besides, herbal processing, floriculture, fruit preservation, organic farming are growing areas where specific technicians seem to be demanded mainly in informal sector. The following are the agriculture related emerging areas and occupations pointed out during group work.

- | | | | |
|----|----------------------------------|---|-----------------------------------|
| 1 | Livestock Technicians | 2 | Floriculture |
| 3 | Organic manure production | 4 | High value crops, (tea, mushroom) |
| 5 | Herbal Processing | 6 | Natural fiber processing |
| 6. | Off Season vegetables production | 7 | Fruit processing and preservation |

3.3.2 Engineering

Almost 6600 trained micro-hydro operators are presently in demand based on the 2 micro-hydro operators for each of almost 3,300 micro-hydro stations. Presently, untrained staff are taking the responsibility of operating such business. Similarly, occupations such as Micro-hydro Installer (Civil), Micro-hydro Installer (Electro-mechanic) are also in significant demand. ITC is the emerging sector where thousands of related technicians can be absorbed. Similarly, the film production is also an emerging industry which can employ technicians such as light men, set designer, makeup artist, fire master, costume designer, photographer and so on. Construction supervisor is a highly demanding occupation in the construction sector. Plumber, heavy equipment operators are also demanded in significant number in construction. In the ITC sector, the following areas and occupations are in demand.

- | | | | |
|---|--|----|---------------------------------------|
| 1 | Web designer, Coding, Graphics | 2 | Mobile Apps developers (Android Apps) |
| 3 | Animation/ Graphics | 4. | Network , Hardware technicians |
| 5 | Customer support technicians (in call center) | | |
| 6 | GIS Mapping | | |

3.3.3 Health

X-rays and radiography are the emerging occupations in health sector. Similarly, Some new and technological innovation in health sector should be updated and manpower should be prepared accordingly. The following are the major occupational areas in health sector.

Table 3.23: Demanding and Emerging Occupations in Health Sector

SN	Occupational Area	Potential Employment Areas
1	Laboratory Personnel	Research Institutes, Genetics, Hospitals, Clinics, Camps, Clubs
2	Radiological Personnel	Hospital, Clinics, Nursing homes, Manpower Company,
3	Nursing	Hospitals, School, Industry, Midwifery Center (VDC)
4	General Health	Hospitals, School, Industry, Midwifery Center (VDC)
5	Public Health	School, Industry, Midwifery Center (VDC)
6	Dental Health	School, Industry, Midwifery Center (VDC)
7	Physiotherapy	School, Industry, Midwifery Center (VDC)
8	Transfusion Personnel	School, Industry, Midwifery Center (VDC)
9	Ophthalmic Personnel	School, Industry, Midwifery Center (VDC)
10	Pharmacists	Pharmacies, Dispensaries

Source: Group Work on Interaction Program

3.3.4 Hospitality Sector

In hospitality sector, almost 61000 non star hotels are presently running with an average of 5 technical staff where more than 95% are untrained. In this way, almost 250,000 to 300,000 trained

human resources are required in these hotels however, the official record does not have all these information. There are various emerging occupations associated with hospitality sectors. The table depicts highly demanded occupations in hospitality sector with respective figures

Table 3.24: Demanding and Emerging Occupations in Hospitality Sector

SN	Occupations	Shortage (%)	Specific Qualification	Estimation for 5 Years
1	Cook (Continental)	80%	L-II	200,000
2	Cook (Indian)	50%	L-II	200,000
3	Cook (Chinese)	75%	L-II	200,000
4	Hotel Management	50%	DHM	50,000
5	Waiter	80%	L-I&II	120,000
6	Housekeeper	80%	L-I	120000
7	Hotel Representative	20%	SLC+ Training	60,000
8	Tour Guide	90%	SLC+ Training	1,000

Source: Group Work on Interaction Program



PART FOUR

ESTIMATION AND SPECULATION OF DEMAND

4.1 Introduction

This part of the report is about estimation or speculation of the workforce based on the analysis of primary data collected under qualitative and quantitative approaches and desk review of public policy and econometric trends. The main basis of estimation made in this report is the existing technical HR engaged in the sample employment units, sampling weightage, number of total population, economic activity of sample employment units, entry and exit of workforce in the labour market (particularly in the sample employment units), supply status of technical human resources.

Because of unavailability of time series data and absence of appropriate LMIS system, econometric projection is difficult to carry out. This is only the anticipation of demand based on the information mentioned earlier.

4.2 Basis of Speculation or Estimation

Major research question of this study is to list out the emerging and demanded occupations in the technical area and speculate their future needs in more specific approach. Although the former part of the question was almost straight forwardly answered by the survey, the assumptions were made and the guidelines were developed to answer latter part of the question. This Survey, which only covers the formal private sector does not give information about government sector and informal sector. As depicted in Box 4.1, the demand of labour market is the sum of the demands of private formal sector, public sector and informal sector.

<i>Total National Demand</i>	<i>Demand of Public Sector + Demand of Formal Private Sector + Demand of Informal Sector</i>
<i>Demand of Public Sector</i>	<i>Demand of Government Organization + Demand of Semi-governmental Organizations</i>
<i>Demand of Formal Sector</i>	<i>Demand of Surveyed Employment Unit * Sampling Weightage *Business Activity of Particular type of Employment Unit</i>
<i>Demand of Informal Sector</i>	<i>Fully based on Qualitative Information</i>

Obviously, the absorption capacity of the formal sector is the multiplication of total employed number in the sample employment units and sampling weightage however, the sample employment units in some strata is too low to statistically represent the whole population. As per the key informants interview and experience of enumerator, research team has reached on the conclusion that the calculation is misleading if the same approach is applied in case of cottage industries, D-level contractor's agencies and NGOs. The registered number of employment units in these categories were either found closed or inactive while tracing those employment units

during the primary collection¹⁷. The key informants also reported the same situation regarding this matter. Similarly, the respondents' perceptions regarding the supply status of technical HR in respective field, number of staff recruited annually and its share with the total staff, and comparison between entry and exit number are also considered as the basis for analysis.

Table 4.1 Major Basis for Projection

SN	Name of Employment Unit (Subsector)	Population	Number of Employment Unit	Sampling Weight
1	Bank and Financial	272	22	12.36
2	Industries	5274	154	34.25
3	Cottage Industries	207172	292	709.49
4	Contractor Agencies	16655	104	160.14
5	Hospitals	508	57	8.91
6	Polyclinic/Pathologies	500	49	10.20
7	Pharmacies	6000	169	35.50
8	INGO/NGOs	30284	101	299.84
9	Education/Training Institutions	971	109	8.91
10	Hotels/Resorts	499	193	2.59
11	Travel/Tracking/Rafting Agencies	4488	94	47.74
12	Total	272623	1344	202.84

Employment opportunities in formal private sector are speculated based on the survey data whereas the same of governmental and semi-governmental organizations were analyzed based on the desk study and qualitative information (i.e. FGD, KII and Policy Analysis). The speculation was made separately for the four sectors: Agriculture, Engineering, Health and Hospitality which is depicted hereafter in detail.

4.3 Agriculture

Likewise in other sectors, the formal private employment is limited within registered private enterprises including banks and other financial institutions, different types of agro-industries and agriculture related cottage industries such as tea industries, agro-processing industries, dairy industries, poultry firms, herbal processing industries, large agricultural firms, INGOs, technical training institutions and so on. The governmental and semi-governmental organizations such as Department of Agriculture, Department of livestock, NARC, CTEVT and its training institutions also offer significant number of employment opportunities to graduates of agriculture trade. Similarly, significant number of graduates can also get employment opportunities in informal sector as self-employed or as a freelancer.

¹⁷ While considering the population the information was based on the affiliation record of Social Welfare Council and sampling was conducted accordingly. While tracing the sample for survey, nearly 20% were only found as per the mentioned address. The corresponding status of D-level contractors' agencies is also the same. The case of cottage industries, pharmacies and C-level contractors agencies are slightly better, almost 50% were found in mentioned address.

4.3.1 Employment in Private Formal Sector

As mentioned earlier, the demand of formal sector is speculated based on the findings of the survey of employment units. The total population of agriculture strata is calculated 28,250, based on the registration or membership record of various sources as explained in methodology. The population, sample and sampling weightage depicted in Table 4.1 are the major basis of estimation for the employment opportunities in formal sector.

Under the basis of the sampling weightage, number of total employees and annual recruitment in the existing enterprises as well as yearly demand for the newly established enterprises are depicted in the Table 4.2. These figures are estimated based on total number of employees and recruited number in previous year asked and analyzed in the survey. The figure in the fifth column which reflects the probable number of employees required in the newly established enterprises was estimated based on the annual trend of industry registration and per industry employment of technical staff. As per this analysis, Junior Technical Assistant (Agriculture), Junior Technical Assistant (Veterinary), Gardner, Poultry Worker, Fiber Processor, Seed Technician are emerged as a top demanded occupations. In totality, 3,41,590 technical workforce are found engaged in agricultural sector including skilled workers to higher level technicians.

Table 4.2 Projected Employment of Major Occupations

SN	Name of occupation	Projected Demand in Formal Establishments			
		Currently Working	Annual Increment	Opportunity in New Enterprises	Total Annual Demand
1	Junior Technical Assistant	10000	2000	300	2300
2	Gardener	7000	1000	200	1200
3	Poultry Worker	6000	2000	150	2150
4	Fiber Processor	4000	1000	100	1100
5	Livestock Technician	2000	1000	50	1050
6	Butcher	2000	1700	50	1750
7	Veterinary JTA	1500	1500	40	1540
8	Seed Technician	1400	1200	40	1240
9	Fish Feeding Technician	1000	700	30	730
10	Bee Keeper	1000	200	30	230
11	Hatchery Technician	700	150	20	170
12	Senior Agriculture Technician	500	150	10	160
13	Agriculture Instructure	500	150	10	160
14	Agriculture Supervisor	500	150	10	160
15	Agriculture Assistant Teacher	150	150	10	160

4.3.2 Demand of Government Sector

As per the data of public service commission, out of total 1,12,295 staff of civil service, 5301 are presently working under Agriculture Group. Out of the 5301 post of agriculture service, 398 is presently vacant which is only 7.5% of total posts. This small number suggests that public service job opportunities for agriculture graduates is almost saturated since the small size of vacant may be due to discontinuity in recruitment process. This is the indication of access supply of agriculture related occupations in comparison to the job opportunities in the current set up of public service. However, government policy may affect the future demand. As analyzed in Part II, almost 3000 Senior/Junior Technical Assistants (TSLC & Diploma) is immediately require for the Agriculture service and 4000 in the long term. Similarly, according to the information from public service commission, 1000(15-20%) more staff from agriculture background seem to be required to address the requirement of federal set up (PSC, 2072)

4.3.3 Employment in Informal Sector:

As per the Living Standard Survey 2011, 64.1% of working age population are engaged in Agriculture sector out of them 2.8% are engaged in wage employment and 61.3% are engaged in self employment (CBS, 2011). The proportion which are engaged in self employment in agriculture are almost considered as informally employed and majority of them are unskilled workers. Likewise, the proportion which represents wage employed are also more or less unskilled in nature. Thus the skilled workforce who are employed informally in agriculture sector is too low to project the demand, however the opportunity for such type of workforce is enormous alongside agriculture market.

4.4 Engineering

The engineering sector which is related with the infrastructure development has broader capacity for creating employment within the country. The infrastructure development activities in the country such as road and bridge, commercial as well as residential housing, mega projects of electrification and construction, adoption of computerized system in the personal and official activities, the mechanization of human activities are the primary determinants that provide signals for the expansion of this sector and hence, reflect the idea for HR requirements. The engineering is a broader sector that provides job opportunities in all private formal establishments, public and informal sectors, which are explained hereunder in detail.

4.4.1 Employment in Private Formal Sector

As mentioned in the methodology, the following private registered organizations are surveyed. These agencies include contractor agencies registered in DDC and Ministry of Physical Planning, Engineering Consultancies, Schools and Institutions and Manufacturing Establishments. The total registered agencies in this category which calculated 22,986 employment units was considered as the total population and information was collected from statistically representative sample size.

- Private educational institutes delivering engineering programs
- Contractors' associations/agencies and housing agencies
- Cottage industries in engineering sector including various service industries (Consulting firms, engineering workshops, furniture industries etc.)
- Industries under the specified categories
- INGOs/NGOs

As per the above mentioned guidelines and assumptions, the demanded occupations and their respective annual demand under formal private sector is depicted in Table 4.3. By this approach Production Skilled Labour, Mason, Carpenter, Electrician, Weaver, Plumber are identified as the top demanded occupations in the formal private sector.

Table 4.3 :Top Demanded Occupations in Formal Private Sector

SN	Name of occupation	Projected Demand in Formal Establishments			
		Currently Working	Annual Increment	Opportunity in New Enterprises	Total Demand
1	Production Skilled Labour	120,000	5,000	6,000	11,000
2	Mason	80,000	500	4,300	4,700
3	Carpenter	80,000	2,500	4,100	6,600
4	Weaver	70,000	700	3,800	4,500
5	Electrician	45,000	700	2,400	3,100
6	Driver	36,000	600	1,900	2,500
7	Plumber	34,000	100	1,800	1,900
8	Mechanic	30,000	3,600	1,600	5,200
9	Machine Operator	21,000	300	1,100	1,400
10	Supervisor	18,000	800	1,000	1,800
11	Brick Molding	17,000	700	900	1,600
12	Miller	16,000	2,500	850	3,350
13	Overseer	15,000	700	800	1,500
14	Mobile Repairer	14,000	2,500	700	3,200
15	Computer Operator	11,000	1,000	600	1,600
16	Production Operator	11,000	350	600	950
17	Metal sculpture	10,000	3,500	500	4,000
18	Welder	10,000	1,700	500	2,200
19	Wood carving	7,000	800	400	1,200

4.4.2 Demand in Government Sector

As per the data of public service commission, out of 1,12,295 sanctioned posts, 11836 staff are presently working under Engineering Service, out of which 3,957 are presently vacant which is 33.4% of total posts. The posts are vacant due to the longer process of official recruitment system, there are other factors responsible such as new provision of inclusive recruitment system, unavailability of related technicians in the market and unwillingness of technicians working in the remote part of the country.

This is the indication of shortage of engineering technicians under specialized field where none of the applicants are available to apply for the jobs. These specialized fields of engineering posts are Textile Engineering, Land Surveyor, Upset Press Man, Senior Mason and so on.

As mentioned in part II, the April Earthquake has completely damaged the human settlements equivalent to NRs. 408,625 billion and public infrastructure equivalent to Rs. 65,783 billion. (NPC

2015). This indicates employment opportunities available in various occupations in Engineering Sector. The natural catastrophe possibly brings the paradigm shift in the demand trend of construction from general structure to earthquake resilient structure.

4.4.3 Demand of Informal Sector:

While analyzing the demand of engineering related occupations, the analysis of three major sub-sectors is Manufacturing and Recycling, Electricity, Gas and Water, and Construction. In the manufacturing sub-sector, 93.3% employment opportunities are in informal sector whereas the corresponding figure of remaining two sub-sectors are 91.2% and 96% respectively (CBS, 2008). But, the demand in informal sector is mostly of unskilled workers including small percentage of basic and middle level technicians other than senior technocrats. So the large proportion (almost 95) of demand of informal sector is for unskilled workers. In this line of reasoning, it can be estimated that around 400,000 technical workforce (Basic and middle level technician) are also currently engaged in informal sector. The expansion of employment market as well as the number required for the replacement of retired workforce is estimated around 10% of total employed. In this approach, around 40,000 annual demand of engineering workforce from technical field are speculated to be demanded in informal sector.

4.6 Health

Presently, employment opportunities for health professionals are mainly available in hospitals, health posts, polyclinics, pathologies, dispensaries, pharmaceutical companies, medical colleges and other health institutions. The hospitals run under missionaries are also providing significant employment opportunities to health professionals. Unlike the other sectors, informal sectors' employment are found negligible for health related professionals.

4.5.1 Employment in Informal Sector:

As delineated above, the major basis of analysis of employment capacities of informal sector is the employment units survey. A total of 398 employment units were surveyed considering 13,458 as a total population. The following are the type of employment units covered in the survey under the health sector.

- Private health service providers (hospital, nursing homes, polyclinics,
- Pathologies , dispensaries,
- School/ Institutions
- Large industries including pharmaceutical industries and health equipment industries
- I/NGOs
- Pharmacies /Dispensaries

Table: 4.4 Highly Demanded Occupation and Estimated Annual Demand

SN	Name of occupation	Projected Demand in Formal Establishment			Total Annual Demand
		Currently working	Annual Increment	Demand in New Enterprises	
1	Beautician	38000	7000	2000	9000
2	CMA	12500	1000	600	1600
3	Staff Nurse	12000	2000	500	2500
4	Pharmacists	7000	500	200	700
5	ANM	6000	500	300	800

6	H.A.	5500	500	300	800
7	Lab Technician	5000	600	300	900
8	B.P.H.	4500	200	200	400
9	Radiographer	4000	500	200	700
10	Lab Assistant	2200	200	100	300
11	Pathologist	1800	60	90	150
12	Ophthalmic Assistant	500	30	20	50
13	X-ray Technician	400	30	20	50
14	Health Teacher	350	20	40	60
15	Eye Assistant	300	10	5	15
16	AHW	200	10	10	20
17	Junior Pharmacists	200	70	10	80
18	Health Assistant Teacher	150	10	5	15
19	Physiotherapist	50	5	5	10
20	Lab-Technologists	50	5	5	10

4.5.2 Demand under Government Sector

As per the data of public service commission, out of 1,12,295 staff of public service, 28,646 staff are presently working under Health Service, out of which, significant number "11687" are presently vacant which is 40.3% of total posts. As mentioned earlier, the posts are vacant due to the longer process of official recruitment system however other factors are also responsible for this situation. The new provisions of inclusive recruitment system, unavailability of related technicians in the market and unwillingness of people working in the remote part of the country may be other responsible factors.

This is the indication of shortage of HRH under specialized categories where none of the applicants are available to apply for the jobs. These specialized field of unfilled posts are Radiographer, Dark Room Assistant, Health Education Instructor, and so on.

4.5.3 Employment Opportunities in Informal Sector

According to Nepal Labour Force Survey, 53.5% of total employed population in health and other social sector are engaged as informal employees. This suggests that the number of HRH who are employed in informal sector is almost equivalent (almost 50%) to the number that are employed in formal sector. Likewise in other sectors, the proportion of population among various categories of health professions and levels is not same as in formal sector. It is a rational to assume that unskilled and basic level workforce are engaged in higher proportion than other higher categories of skills. Considering this fact, the proportion of HRH in the categories such as Pharmacists, Community Medicine Assistant (CMA) and Pathologists are found higher proportion than in formal sector however the Staff Nurse, Auxiliary Nurse Midwife, Radiographer, Ophthalmic Assistants are in lower proportion. In totality almost 150,000 health professional are found engaged in informal sector including Skilled Birth Attendant to higher level medical doctor.

4.6 Hospitality

The employment opportunities provided by the tourism industry is the function of the flow of tourist (both internal and external) in the country. The tourism activities or number of establishments related with the tourism industry such as hotel and lodge, travel and trekking activities, mountaineering activities, home stay services, religious tourism, sports tourism activities such as paragliding, rafting and bungee jumping can be the major indicators for employment assessment. The number of such establishments and their activeness had provided the insights about the employment creation capacity of the tourism or hospitality sectors.

4.6.1 Employment in Private Formal Sector

The employees engaged in the registered enterprises involved in the above mentioned activities was the total population of the study calculated as 4,987. Here are the lists of employment units in tourism sector, from which the samples were drawn.

- Hotel, lodge, restaurants and tea houses
- Travel/ Trekking/Rafting/ Mountaineering Agencies
- Home stay services
- Emerging occupations on tourism including bunging, paragliding etc.
- Associate members of Hotel Association of Nepal (HAN) and Hotel Professional Federation of Nepal (HPFN)

As per the similar estimation approach, Waiter, Field Guide Tourist, Thangka Painter, Cook, Bamboo Furniture Maker, Washer Man, Housekeeper are the emerging and demanding occupations in tourism sector.

Table: 4.5 Demanded Occupation and Number of Demand

SN	Name of occupation	Presently Working	Probable Annual Requirement
1	Waiter	7000	300
2	Field Guide Tourist	4000	200
3	Thangka Painter	1250	150
4	Cook	3500	150
5	Bamboo Furniture Maker	3550	150
6	Washer Man	3400	150
7	Housekeeper	3000	125
8	Receptionist	2600	100
9	Potter	2500	100
10	Cabin Crew	100	10
11	Binding	1800	75
12	Airport Operator	200	10
13	Front Office	800	30
14	Reservation	600	30
15	Room Maid	600	60
16	Mountaineer Guide	350	20
17	Food and Beverage	300	30
18	Laundry Boy	250	20

4.6.2 Employment in Private Formal Sector

Public sector rarely provides any long term employment opportunities for the tourism related skilled workers. The Nepal Tourism Board (NTB) employed the tourism related professionals however this number is quite limited. The institute such as Nepal Tourism and Hospitality Management and other tourism related institutes themselves do not provide any notable employments except preparing trained workforce for the rest of the tourism industry. So the employment opportunities for tourism related skilled workforce are only limited within the formal set up of hotels, lodges, restaurants, travel and trekking agencies as well as other informally available seasonal employment.

4.6.3 Employment in Informal Sector

As per the Labour Force Survey 2008, out of the total population employed in hotel and restaurant sub-sector, 96.6% are informally employed whereas only 3.4% have got formal employment in this sub-sector (CBS, 2011). In this survey, the number of formal employment in hotel and restaurant sector is 12,382 which represents only 3.4% of employment (i.e. formal). In this line of reasoning, approximately 350,000 workforce are assumed in the hotel and restaurant business. If we assumed that annual requirement of workforce is around 10% of total employment, 35,000 is the speculated annual demand of hotel and restaurant sub-sector in totality . Moreover, by applying the same logic, almost similar number of employment opportunities are annually available in the other tourism related establishments such as travel/trekking and rafting agencies. The hotels and restaurants considered here are not only limited to tourist standard hotels, so this number is quite higher than the number calculated by WTTC as explained in Part II.

PART FIVE

FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Background

Based on the analysis made in earlier parts, this part incorporates the major findings, conclusion and recommendations. On one hand employment opportunities in public sector are almost saturated for the average technical workforce and on the other hand the private sector is not developed and become competitive to employ competent human resources in a desired level. The manufacturing industry which is considered as the major employment sector is not getting friendly environment to flourish so that employment opportunities can be created in this sector in a desired number. Lack of matching and quality workforce is one of the reasons for such situation. The service sector such as construction and tourism which are in prominent position to generate employment opportunities for technical human resources to some extent however only small proportion of demand is only fulfilled by it.

The survey result depicts that majority employees in the formal sector are from technical background or skilled based but annual increment in employment is negligible. It is not noteworthy to report that everyone in two enterprises have not performed satisfactorily in the last few years. Moreover, no more evidences can be gathered to expect betterment of situation in the future except the ambitious looking targets of public policies and development plans. Supply of quality technician in desired quality and quantity can be the instrumental to make such development plans achievable.

The employers are found preferring experienced workers than trained workers. This is because of the dominance of theoretical portion and lack of practical or work based learning approach in the existing training curricula. In most of trades and programs where curricula are somewhat appropriate, it is not followed properly by the institution while teaching. Although the conclusion as mentioned above can be common in each trade and program, significant variation can be found in the demand and supply situation of workforce and the factors responsible for such variation are not common in all trades and programs. The conclusion and recommendation part is therefore explained in four sub-topics as Agriculture, Engineering, Tourism and Health Sectors as follows.

5.2 Agriculture

Agriculture is the potential sector for employment however extremely large proportion of unskilled labour are being engaged in agriculture. Majority of formal employment opportunities in agriculture are limited within government and I/NGOs, however the present trend of shifting from subsistence agriculture to market agriculture plays vital role to generate employment opportunities for skilled workforce even in the informal sector. Presently, extensive use of modern technologies also increases the demand of skilled workforce. This research explores the facts regarding the labour market dynamics and dimensions of technical HR in agriculture sector which are listed out hereafter as major findings. Besides, this topic also incorporates conclusions drawn based on the findings along with policy level recommendation.

5.2.1 Major Findings

- Agriculture is the largest sector for employment however extremely large proportion (61.3%) of informal employment is there in which majority are unskilled labor.

- The growth rate of agriculture sector remained around 4% in the last decade. The lack of year round irrigation, technology and technicians are the responsible factors for this disappointing situation.
- Structural transformation can be observed in the Nepalese economy. The contribution of agriculture sector in GDP has been decreased from 37.9% to 32.3% during the last 12 years (058/59 to 071/72). Unlike the agriculture sector, contribution of Service sector has been increased from 45.1% -53.2% during the same period of time.
- There are almost 28,462 formally registered agriculture enterprises throughout the country which employ almost 100,000 workforce at the rate of 27 employees per enterprise, of which 41,000 are technical staff.
- Among the 247 surveyed enterprises, 48 enterprises recruited 157 new technical staff during the last 12 months from the survey. At the same time 151 staff were also made redundant from the job.
- One out of four agriculture related enterprises has been found suffered from the crisis of technical workforce, this figure is comparatively higher than sectors of engineering, health and hospitality.
- Last five years business status of agriculture related enterprises was found comparatively sound than the enterprises related to engineering, health and hospitality sectors. Business of almost 64% of agriculture related enterprises were boomed and another 23.6% enterprises maintained their status quo. Unlike, business of 12.3% employment units were reported shrunk during the same period of time.
- Government policy to expand agriculture services up to VDC level has created job opportunities to around 4000 middle level agriculture and livestock technicians.
- Organic farming, floriculture, herbal processing, natural fiber processing are the representative emerging agro-businesses where technical HR of specific skills are immediately needed.
- Junior Technical Assistant (Ag), Gardner, poultry worker, Fiber processor, Livestock technicians, Veterinary JTA, Seed Technicians are the demanding occupations in agriculture of which annual demand of 1000-2000 is there only in the formal sector.
- Middle level technician were not in demand in significant number in informal sector however the lower level technicians are harshly needed.

5.2.2 Conclusion and Recommendations

Conclusion: Employers of demanding occupations have difficulty to find appropriate technicians due to the insufficient contents of the curricula. Unlike the curricula, lack of efficient and effective training method is more responsible to widen the gaps between the employers' needs and skills of trained graduates.

- **Recommendation 1:** Short term curricula should be developed in the occupations such as Seed Technician, Gardener, Weaver, Poultry Technician, Fish Feeding Technicians, and Fiber processor as per the need of the employers.
- **Recommendation 2:** Updating and modification of the existing curricula of Junior Technical Assistant, Livestock technicians incorporating some technical contents related to emerging agro businesses such as herbal processing, organic farming, floriculture as well as soft skills including business or entrepreneurial skills is must which enhances the employability of graduates.

Conclusion: On one hand the graduates are found attracted towards wage employment in formal sector however such type of employment opportunities in agriculture are limited within government and I/NGOs. On the other hand, present trends of shift from subsistence agriculture to market agriculture and technological innovation paves the way to generate large number of employment opportunities in informal sector, however graduates are hardly found motivated and capacitated to start their own business.

- **Recommendation 3:** The existing curricula are to be modified to incorporate the necessary soft skills components including business skills and entrepreneurial skills.
- **Recommendation 4:** Appropriate career counseling should be conducted before enrolling in TVET programs so that trainees can choose the programs as per their interest and get enough time to be motivated towards self-employment.
- **Recommendation 5:** Placement and coordination mechanism should be there to establish a linkage between TVET graduates to financial institutions for managing investment source as well as provide facilitating role throughout the whole process.
- **Recommendation 6:** The occupations such as Agro-mechanics, Food-technicians, Gardener and Floriculture are modern field of agriculture so medium term course should be designed regarding these fields so as to capacitate trainees to start their own business.

5.3 Engineering

Developing country like Nepal has large need for investment in infrastructure such as hydro electricity, road transportation, bridge construction, public offices and private residencies. The April Earthquake further multiplied the need for such type of investments which can generate employment opportunities in large number however, the investment trends of past few years specially in the large infrastructure sector was not encouraging. The analysis carried out in this study have explored several facts which are synopsisized hereafter as major findings.

5.3.1 Major Findings

- Sectoral growth rate of GDP of Manufacturing, Construction, and Electricity, Gas and Water was not in deterministic trend to speculate the future growth rate. The growth rate ranges between -3.44 to 13% during that period.
- The employment elasticity of output growth can be a tentative measure to speculate the demand of workforce by analyzing the trend of economic growth. In case of Nepal such type of elasticity can be taken as 0.71.
- The employment generating capacity of Nepalese Industrial sector has shrunk during the last decade. The contribution of Industrial sector to GDP has fallen from 17% percent to 14.5% during the last decade.
- The mega projects having capacity to generate large number of employment are either already initiated such as Midhill Highway, North-South Corridor, Terai Madhesh Fast Track Road Project and Hulaki Highway or some are in pipe line such as Bheri-Babai Diversion, Kaligandaki-Tinau diversion, Sunkoshi-Kamala diversion, EW Electrified Railway Project.

- Alternative energy sector is also generating significant number of employment opportunities for the technicians such as micro-hydro operator, micro-hydro installer, solar technician, solar maintenance technicians and so on.
- Around 30,000 employments are being created annually in big industries and similar number is also in cottage and small industry.
- In totality, fifty percent of staff of engineering related enterprises were from technical background whereas the disaggregated figure shows that proportion of Cottage Industry is 58.33%, Contractor Agency 48.5% and 45.43% in big industry.
- Majority of engineering related enterprises (54.5%) were found booming during the last five years since the time of survey whereas the significant proportion (23.3%)were able to maintain the position of status quo.
- Information based on employment unit survey, general mechanics, production operator, Information technology were emerged as the major demanded occupations.
- Twenty one percent employment units in engineering sector have suffered from workforce crisis during few years in the past where as majority of enterprises have witnessed the excess and/or moderate supply of workforce.

5.3.2 Conclusion and Recommendation

Conclusion: The sectoral growth rate of GDP in all sectors including the engineering related sub-sectors such as Manufacturing, Construction and Electricity, Gas and water were below average in the last decade. On one hand, significant proportion of government development expenditure were gone unspent but on the other hand, private investors are also not getting favorable business climate for the productive investments. As a result, job opportunities created in the economy are far lower than the number of employment seekers enter annually in the labour markets.

- **Recommendation 1:** As in agriculture sector, engineering sector should also be focused on preparing human resources based on the informal sectors' requirement and more oriented towards self employment. One elective subjects of soft skills should be incorporated in curricula for the TSLC courses
- **Recommendation 2:** Short courses such as plumber, mason, welder, carpenter, auto-mechanics are emerging as the demanding occupations in informal sector however HR in the mentioned occupations should be developed as an employment creator than an employment absorber by designing a self employment oriented course of medium term incorporating necessary soft skills such as entrepreneurial skills, business skills and interpersonal skills

Conclusion: Employment opportunities of engineering of public sector are also almost saturated however; technological innovation and modernization of work procedure always give birth to the demand of more specified technicians. Such type of hi-tech technicians are highly demanded not only in private formal sector but also in government sector where such type of post gone unfulfilled even after the repeated advertisements.

- **Recommendation 3:** The specialized courses for middle level technician, parallel with the higher engineering degree should be designed and program should be run accordingly such as Diploma/TSLC in Chemical Engineering, Diploma/TSLC in Structural Engineering, Diploma/TSLC in Hydroelectric Engineering, TSLC in Electronics Engineering.
- **Recommendation 4:** The technicians are widely available in labour market, though the posts are still remained unfulfilled due to the reservation category so that target community focus program is must for operating TVET programs.

Conclusion: Analyzing the early sign, potentiality of paradigm shift in the demand of construction related workforce has appeared in the economy after the catastrophic earthquake of April 25, 2015 and the continuous aftershocks thereafter. Massive amount of reconstruction and new construction of public and private buildings as well as other infrastructure is the immediate necessity. The greater awareness of earthquake resilient technology is also raised not only in the engineering technicians but also in general public. This situation paves the way for significant number of employment opportunities for engineering related skilled workers, medium level technicians not only in quantity but also in quality.

- **Recommendation 5:** All curricula under Engineering Trades should be revised to incorporate earthquake resilient technology to some extent and special courses should also be designed giving due focus on such type of technology.
- **Recommendation 6:** Viewing the post disaster reconstruction need, the number of short term training such as mason, plumber, welder, carpenter and so on. should be increased by two fold and middle level technicians should be increased by double within three -five years.

5.4 Health Sector

In this report, trend and policy analysis was made focusing on the needs of HRH in the country. Similarly as other sectors, primary survey was conducted to 384 hospitals and other health related institutions and industries. In addition to the primary survey and trend and policy analysis, dozens of key informants were also interviewed and interaction program was also organized. Analyzing the information gathered from all these sources the major findings are explored as hereafter.

5.4.1 Major Findings

- The employment opportunities of health related occupations such as Staff Nurse, Auxiliary Nurse Midwife, Health Assistant are almost saturated in public sectors however annual retirement of staff creates opportunities for limited number of graduates.
- The expansion plan of health services up to ward level seems to create additional employment opportunities for almost 10 thousand health professionals in various fields.
- The transformation process from unitary political system to federalism seem to create 20% additional job opportunities for health related professional from basic to higher technocrat level.
- Almost 47% staff of public health services comprises of basic and middle level health technicians.
- Although no significant increment in public health institutions has been observed during last 15 years, 46% expansion of health services (including hospital beds) was observed between the same interval.
- In the health related surveyed enterprises including hospitals, policlinic/pathologies, and pharmacies, 51.29% of staffs working in these enterprises were from technical background.
- Health sector can be considered as a booming sector in respect to other surveyed sectors, since 57% percent of health related enterprises reported their last five years' business as booming.
- Among the various categories of health related enterprises, hospital business is comparatively found boomed than polyclinics/pathologies and pharmacy businesses.

- Staff Nurse, Health Assistants, Community Medical Assistants, Auxiliary Nurse Midwife, Beautician can be considered as top demanded occupations irrespective of supply status.
- Some middle level health technicians in specialized field such as Orthopaedic, Optical Fitting and Dispensing, Radiography, Homeopathy, ECG, Physiotherapy are of immediate demand not only in private but also in public sector.

5.4.2 Conclusion and Recommendations

Conclusion: Presently, technicians in health related occupations are almost saturated in the public jobs. But, the government policy to extend primary health care facilities up to Ward and Village level may create some additional employment opportunities for medium level health technicians. Moreover, governments' policy towards privatization of health services also created enabling environment to open private hospitals thereby ample number of employment opportunities are also created in private sector.

- **Recommendation 1:** Since the health policy can create employment opportunities for various health technicians in significant number, TVET extension plan should be linked with implementation status of other public policies including health policy.
- **Recommendation 2:** The supply of HRH should not be increased abruptly except some new trades such as Optical Fitting Assistant, homeopathy (See. Part II for Detail List) however, slight increment in supply is essential as per the expansion of health service both in private and public sectors.

Conclusion: Self employment opportunities are also there for the occupations such as Pharmacies and Lab Technicians however, majority of traditional health related trades have only opportunities for formal employment. Presently, health sector is adopting modern and innovative technologies which give birth to the new and very specific demands. Similarly qualitative data further suggests that demand of Technical HR will be increased by 15 percent in the next five years.

- **Recommendation 3:** The curriculum such as Pharmacy, Lab-technicians and Radiology should be comprised of necessary soft-skills components including entrepreneurship skills to orient and motivate the graduates for self employment.
- **Recommendation 4:** The changed or emerged technology in health sector creates opportunities of new jobs, therefore workforce should be prepared based on the findings of periodic market assessment.
- **Recommendation 5:** Quality of health services has major role for employment opportunities, therefore; CTEVT should enforce strong mechanism of monitoring and supervision for quality delivery of training program.
- **Recommendation 6:** Necessary action should be taken by concerned agencies mainly by CTEVT to incorporate adequate practical components in the curricula as well as ensure its proper implementation.

5.5 Hospitality

Due to its geo-social diversity, tourism is the major potential sector of economic development and employment generation in Nepal; however desired benefits have not been achieved from it till date. Lack of tourism infrastructure, political instability, lack of trained and efficient human resources are the major problems of this sector. As other sectors, past trend of tourist flow, government policies, primary survey of tourism establishments, key informants interviewed are

the major basis for the analysis of workforce demand of hospitality sector. The following are the major findings explored from the analysis made in this study.

5.5.1 Major Findings:

- Since the flow of tourists is found directly influenced by the political stability, employment in hospitality sector will be in expected level only under the condition of favorable political environment.
- Hospitality industry provides direct employment to around 200 thousand people, if indirect and induced employment are also be considered this figure reaches to almost 600 thousands.
- Under the favorable political environment, the hospitality industry will accommodate almost 1 million people by the year 2021.
- Opening of a five star hotel requires almost 1000 tourism related professionals.
- Out of the total staff working in a tourism establishment, 52.37% are required from technical background which is higher in respect to other type of establishment analyzed in this report.
- While reviewing the business trend of hospitality sector in the last five years, completely pessimistic scenario is observed. Only 39% of enterprises experienced boomed business during that period.
- Among the hospitality industry, business status of hotel resorts are somewhat better than that of Travel/ Trekking and Rafting Agencies
- Entrepreneurs are not found optimism about the future of their business.
- During the last 12 months from the survey, 197 enterprises hospitality sectors' enterprises hired 456 employees whereas, at the same time 485 staff were also made redundant from the job by 226 enterprises.
- Waiter, Cook, Housekeeper, Field Guide Tourist, Thanka Painter, Receptionist are emerged as the highly demanded occupations in hospitality sector irrespective of supply status.
- About 20% of hospitality related enterprises have suffered from workforce crisis in the past, however rest 80% didn't have such experience.
- Performance level of majority of employees (79%) was found satisfactory.

5.5.2 Conclusion and Recommendations

Conclusion: Although, hospitality industry have been suffering from its worst time because of the political instability of the country, large number of hospitality professionals seems to be demanded in the future if it can be expected improvement of situation as well as effective implementation of Tourism Policy 2010 and other Tourism Development Strategies . The job opportunity for the hospitality professionals in public organizations is very limited but such type of opportunity is in significant number within the formal set up of hotel resorts and restaurants butt major proportion of employment is accommodated by informal sector.

- **Recommendation 1:** CTEVT has to pay proper attention to establish tourism related institutions with enough physical and other educational infrastructure in the main tourism destinations such as Chitwan, Solukhumbu and Bardiya in teaching hotel basis¹⁸.
- **Recommendation 2:** The involvement of CTEVT in Tourism Sector is limited, therefore; it should expand its programs through proper coordination with concerned stakeholders.

¹⁸ Like in the teaching hospital, teaching hotel modality provides ample practical exposure within their own premises.

Conclusion: The employers in tourism related organizations prefer experienced workers than trained workers which suggests for inadequate practical exposure in the institution. Moreover, Nepalese hospitality industry has already started to be diversified in to various forms such as village tourism (including home stay), adventure tourism, sports tourism (Bungee jumping but the human resources are not available to address the HR requirement as per this diversified demand.

- **Recommendation 3:** Diversification has been occurred in the tourism business so courses of tourism should be redesigned so as to make it compatible with the changing need of tourism industry;
- **Recommendation 4:** New curricula should be designed and developed to address the emerging and diversified needs of tourism sectors such as paragliding, rafting, Bungee Jumping, Canoeing and so on. Similarly, specification of cooking profession should be done by specifying it as Indian, Continental, Chinese and so forth.

5.6 Other Recommendations

The other recommendations which are common or not covered by the above mentioned major four categories are as follows;

- The study with its limitation could not explore the employment opportunities entering into other potential areas such as cottage industries, arts and crafts and the areas beyond the above mentioned categories. To address and identify the employment opportunities in such areas, a separate study should be designed and conducted.
- Informal economy is huge sector but it is scattered, fragmented and not within the recording system. Lots of economic activities happen in the sector and create employment opportunities for skilled workforce. This study has tried to reach to the sector but with its limitations, could not address it completely. Therefore, a separate study of informal sector should be designed and conducted in future.
- Recently the country has got new constitution entering into Federal States of Republic. The study was not designed to address human resource requirement for the implementation of the new constitution. Therefore, there should be a separate labour market survey to address the needs of skilled workforce for the forthcoming seven provinces of the country.
- Film and recreation industry is new area which is rapidly developing in Nepal. The industry was not within the scope of this study. Therefore, to identify the needs of skilled workers of the industry, a separate study should be designed and conducted.
- For the complete projection of human resource requirement, separate study for each sector should be conducted in future.

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ANNEXES
Annex 1: Occupation wise redundant and recruited number

SN	Name of occupation	Recruited Number		Redundant Number	
		Employment Unit	Employees	Employment Unit	Employees
1	Waiter	56	138	64	140
2	Staff Nurse	19	107	19	88
3	Administration	3	73	3	7
4	Unskilled Labour	7	67	9	89
5	Health Assistant	14	63	6	8
6	Housekeeper	23	63	22	57
7	Cook	31	61	35	77
8	CMA	18	47	16	46
9	Mechanic	10	42	7	38
10	Auxiliary Nurse Midwifery	14	41	11	33
11	Field Guide Tourist	4	31	1	1
12	Beautician	19	29	15	20
13	Helper	17	28	17	27
14	B.P.H.	2	25		0
15	Production Operator	5	25	6	29
16	IT Staff	1	25		0
17	Social Mobilizer	6	25	4	10
18	Junior Technical Assistant	5	22	3	6
19	Receptionist	13	21	13	19
20	Technician	4	21	2	14
21	Agriculture Labour	1	20	1	20
22	Servicing Mechanic	2	20	2	11
23	Brick Molding	1	20	1	20
24	Lab Technician	13	19	9	13
25	Front Office	8	18	10	23
26	Computer Technician	10	18	8	13
27	Radiographer	4	18	2	5
28	Veterinary JTA	2	18	1	3
29	Pharmacist	11	17	8	11
30	Accountant	9	17	12	26
31	Production Skilled Labour	2	15	1	20
32	Lab Assistant	10	14	7	8
33	Welder	9	13	9	20
34	Tailoring	4	12	3	6
35	Overseer	7	12	3	5
36	Miller	9	12	7	10

37	Computer Operator	11	11	10	10
38	Electrician	6	10	6	10
39	Metal Sculpture	2	10	2	8
40	Mobile Repairer	7	10	6	9
41	Driver	6	10	8	13
42	Packaging Staffs	2	10	2	9
43	Ticketing Staffs	6	10	9	25
44	Machine Operator	2	10	4	14
45	Sales Person	6	9	9	13
46	Electronic Technician	2	9	2	4
47	Security Guard	6	8	5	6
48	Marketing Officer	6	8	13	19
49	B. Nursing	3	8	4	16
50	Management	3	7	4	8
51	Carpenter	4	7	6	15
52	Entrepreneurship Development Facilitator	1	7		0
53	Baker	3	6	3	5
54	Computer engineer	2	6		0
55	Engineer	3	6	1	2
56	Poultry Worker	1	6	1	6
57	Computer Teacher	2	5	2	4
58	Teacher	1	5	1	5
59	Butcher	1	5	1	3
60	Bell Boy	2	4	1	2
61	Wood carving	4	4	3	3
62	Room maid	3	4	2	2
63	Supervisor	3	4	6	10
64	Reservation	4	4	2	2
65	Cook+ Waiter	1	4	1	4
66	Engineer	2	4	6	24
67	LGF	1	4		0
68	CCC	1	4		0
69	Washer Man	2	4	3	5
70	Gardener	3	3	2	2
71	Thanka Painter	1	3	2	7
72	Cleaner	2	3	4	7
73	Cutting	1	3	1	2
74	Doctor	3	3	4	5
75	Chef	1	3	1	2
76	Repairer Assistant	1	2	1	2
77	Plumber	1	2	2	3
78	D. Pharma	1	2	1	1

79	Land Surveyor	1	2		0
80	Computer Hardware/Software	1	2	1	2
81	Agriculture Assistant Teacher	1	2	1	1
82	Health Teacher	1	2	1	3
83	Bus Conductor	1	2		0
84	Weaver	1	2	1	2
85	Leather Shoes/Craft Maker	1	2	1	2
86	Bee Keeper	1	2	1	2
87	Medical Representative	1	2	1	3
88	ICS	1	2		0
89	Furniture Coloring	1	2	1	2
90	Dyeing	1	2	1	2
91	Food and Beverage	2	2	2	2
92	Fish Feeding	1	2	1	2
93	Trainer	1	1	1	1
94	Barista	1	1		0
95	Diner	1	1		0
96	B. Pharma	1	1		0
97	Fashion Designer	1	1	1	1
98	Mason	1	1	1	1
99	AHW	1	1	2	3
100	Dairy Assistant	1	1	1	1
101	Book Binder	1	1	1	1
102	Program/ Institutional Facilitator	1	1		0
103	Meter Reader	1	1		0
104	Technical Teacher	1	1	2	3
105	Physician	1	1	1	1
106	Dentist	1	1		0
107	BMLT	1	1	1	1
108	Barber	1	1	1	3
109	Baidhya	1	1	1	1
110	Loader	1	1	1	1
111	Wiring	1	1	1	1
112	Pallet Operator	1	1	1	1
113	Sub-overseer	1	1	1	1
114	Ophthalmic Officer	1	1		0
115	Operator	1	1	1	2
116	Electrical Engineer	1	1	1	1

117	Ophthalmic Assistant	1	1		0
118	All Rounder	1	1	1	1
119	Officer Staff	1	1		0
120	Transportation Department	1	1		0
121	Kayaker	1	1	1	1
122	X-ray Technician		0	1	1
123	B. Pharma		0	1	1
124	Rafting Guide		0	1	1
125	Carpet Fitting		0	1	1
126	Roll Man		0	1	1
127	Dish Washer		0	1	2
128	B. Pharma		0	1	1
129	Assistant Cook		0	1	1
130	Maintenance		0	1	1
131	M Pharma		0	1	2
132	Computer Software		0	1	1
133	Pilot		0	1	2
134	Painter		0	1	3

Annex 2A: Local and national demand of workforce in Nepal

S. N	Respondents	Local demand		National demand		Remark
		Formal No projection	Informal No projection	Formal No projection	Informal No projection	
1	Nepal Nursing Council					No demand but over supply
2	Nepal Health Professional Council	35%	65%	40%	60%	Formal-30% Informal-70%
3	Hotel Association of Nepal	25%	75%	40%	60%	Local: 25% National: 35% No new recruitment
4	Nepal Association of Tour and Travel Agent	10%	90%	40%	60%	Region wise demands are different
5	Trekking Association of Nepal	10%	90%	-	-	No system in the sector
6	Nepal Telecom	No projection	No projection	No projection	No projection	Outsourcing is in practice
7	Nepal Trade Union Congress	2%	98%	2%	98%	There is gap between supply and demand
8	Federation of Construction of Nepal	60%	40%	20%	80%	Lack of workers due to foreign attraction
9	GFONT	5%	95%	10%	90%	High demand of skilled workers
10	Nepal Tourism Board	20%	80%	20%	80%	Highly skilled workers are in demand
11	Nepal Electricity Authority	80%	20%	80%	20%	High demand of skilled workers
12	Federation of Nepal Chamber of Commerce and Industry	4%	96%	4%	96%	Mismatch in skills and demand

Annex 2B: Local and national demand of workforce in Nepal

S.N	Respondents	Responses	Remarks
1	Nepal Nursing Council	<ul style="list-style-type: none"> • Less demand but oversupply of nursing professionals • No national projection between demand and supply • No jobs in government sector • High percentage engage in private jobs but with less remuneration • There is attraction in foreign employment and due to the reason more people want to undergo the nursing education and training 	
2	Nepal Health Professional Council	<ul style="list-style-type: none"> • Health workers who hold license are employed directly or indirectly • Except Community Medicine Assistant, other occupations of Para-health workers are found employed • They have engage in public, private, NGOs, INGOs, CBOs and in their own enterprises 	
3	Hotel Association of Nepal	<ul style="list-style-type: none"> • Star hotels employ trained people. Therefore, there is limited opportunity of employment in hotel management • No expansion of hotel management • No new recruitment is taking place • There is oversupply of trained people 	
4	Nepal Association of Tour and Travel Agent	<ul style="list-style-type: none"> • Increment of skilled workers in this occupation • National demand is high but varies from development region to region. High demand in central and western region but less demand in other development regions • Priority is given to skilled workers 	
5	Trekking Association of Nepal	<ul style="list-style-type: none"> • High skilled workers are in demand such as mountaineering guides • Demand are local based though offices are in the urban areas • Workers get opportunity where trekking activities take place 	
6	Nepal Telecom	<ul style="list-style-type: none"> • Most of the works are being done through outsourcing of skilled people • There is need of skilled workers as demanded by the nature of job they have to carry out in Tele-com sector 	
7	Nepal Trade Union Congress	<ul style="list-style-type: none"> • Overflow of workers to foreign employment • Less minimum wages in the country • There is gap between supply and demand • No workers available for construction work after devastating earthquake 2072 • Child labor exits 	
8	Federation of Construction of Nepal	<ul style="list-style-type: none"> • Once they are trained they leave for foreign jobs • No workers for tunnel construction • No worker for heavy equipment operation • There is demand for skilled workers 	
9	GFONT	<ul style="list-style-type: none"> • High demand of skilled workers • Still foreign workers are working in Nepalese industries • Construction and reconstruction after earthquake needs huge number of skilled workers 	
10	Nepal Tourism Board	<ul style="list-style-type: none"> • The Board is to support to tourism sector, therefore, it is not directly related to employment • There is shortage of highly trained workers in hotels, travel, trekking and tour occupations 	
11	Nepal Electricity Authority	<ul style="list-style-type: none"> • Most of the extension and new projects are done through contractors and contractors need skilled workers for their projects • There is need of skilled workers 	

		<ul style="list-style-type: none">• Skill upgrading courses are highly demanded to develop its personnel• Mostly workers trained by CTEVT are recruited• Mostly NATHM trained people are recruited. The respondent had little knowledge about CTEVT products
12	Federation of Nepal Chamber of Commerce and Industry	<ul style="list-style-type: none">• Workers are not available• Workers are flying to overseas for employment• Training programs are not need based• Workers are not prepared for foreign employment. Those who fly to overseas do not meet the requirements and are forced to work as labors



Annex 2C: Employment percentile in formal and informal sectors

S.N	Respondents	Formal opportunities	Employment	Informal opportunities	employment	Remarks
1	Nepal Nursing Council		Little		Some	
2	Nepal Health Professional Council		70%		30%	
3	Hotel Association of Nepal		95%		5%	
4	Nepal Association of Tour and Travel Agent		70%		30%	
5	Trekking Association of Nepal		30%		70%	
6	Nepal Telecom		80%		20%	
7	Nepal Trade Union Congress		30%		70%	
8	Federation of Construction of Nepal		20%		80%	
9	GFONT		10%		90%	
10	Nepal Tourism Board		20%		80%	
11	Nepal Electricity Authority		80%		20%	
12	Federation of Nepal Chamber of Commerce and Industry		4%		96%	



Annex 3: Growth speculation for next five years

S.N	Respondents	Local demand	National demand	Remark	Remark	Remark
1	Nepal Nursing Council	Formal No projection	Informal No projection	Formal No projection	Informal No projection	No demand but over supply
2	Nepal Health Professional Council	35%	65%	40%	60%	Formal-30% Informal-70%
3	Hotel Association of Nepal	25%	75%	40%	60%	Local: 25% National: 35% No new recruitment
4	Nepal Association of Tour and Travel Agent	10%	90%	40%	60%	Region wise demands are different
5	Trekking Association of Nepal	10%	90%	-	-	No system in the sector
6	Nepal Telecom	No projection	No projection	No projection	No projection	Outsourcing is in practice
7	Nepal Trade Union Congress	2%	98%	2%	98%	There is gap between supply and demand
8	Federation of Construction of Nepal	60%	40%	20%	80%	Lack of workers due to foreign attraction
9	GFONT	5%	95%	10%	90%	High demand of skilled workers
10	Nepal Tourism Board	20%	80%	20%	80%	Highly skilled workers are in demand
11	Nepal Electricity Authority	80%	20%	80%	20%	High demand of skilled workers
12	Federation of Nepal Chamber of Commerce and Industry	4%	96%	4%	96%	Mismatch in skills and demand
13	Department of Agriculture	10%	No data	No data	110%	High level workers are in demand
14	NARC	No data	No data	No data	60%	High level workers are in demand



Annex 4: Availability of skilled workforce

S.N	Respondents	Responses	Remarks
1	Nepal Nursing Council	<ul style="list-style-type: none"> • Less demand but oversupply of nursing professionals • No national projection between demand and supply • No jobs in government sector • High percentage engage in private jobs but with less remuneration • There is attraction in foreign employment and due to the reason more people want to undergo the nursing education and training 	
2	Nepal Health Professional Council	<ul style="list-style-type: none"> • Health workers who hold license are employed directly or indirectly • Except Community Medicine Assistant, other occupations of Para-health workers are found employed • They have engage in public, private, NGOs, INGOs, CBOs and in their own enterprises 	
3	Hotel Association of Nepal	<ul style="list-style-type: none"> • Star hotels employ trained people. Therefore, there is limited opportunity of employment in hotel management • No expansion of hotel management • No new recruitment is taking place • There is oversupply of trained people 	
4	Nepal Association of Tour and Travel Agent	<ul style="list-style-type: none"> • Increment of skilled workers in this occupation • National demand is high but varies from development region to region. High demand in central and western region but less demand in other development regions • Priority is given to skilled workers 	
5	Trekking Association of Nepal	<ul style="list-style-type: none"> • High skilled workers are in demand such as mountaineering guides • Demand are local based though offices are in the urban areas • Workers get opportunity where trekking activities take place 	
6	Nepal Telecom	<ul style="list-style-type: none"> • Most of the works are being done through outsourcing of skilled people • There is need of skilled workers as demanded by the nature of job they have to carry out in Tele-com sector 	
7	Nepal Trade Union Congress	<ul style="list-style-type: none"> • Overflow of workers to foreign employment • Less minimum wages in the country • There is gap between supply and demand • No workers available for construction work after devastating earthquake 2072 • Child labor exists 	
8	Federation of Construction of Nepal	<ul style="list-style-type: none"> • Once they are trained they leave for foreign jobs • No workers for tunnel construction • No worker for heavy equipment operation • There is demand for skilled workers 	
9	GFONT	<ul style="list-style-type: none"> • High demand of skilled workers • Still foreign workers are working in Nepalese industries • Construction and reconstruction after earthquake needs huge number of skilled workers 	
10	Nepal Tourism Board	<ul style="list-style-type: none"> • The Board is to support to tourism sector, therefore, it is not directly related to employment • There is shortage of highly trained workers in hotels, travel, trekking and tour occupations 	

11	Nepal Electricity Authority	<ul style="list-style-type: none"> • Most of the extension and new projects are done through contractors and contractors need skilled workers for their projects • There is need of skilled workers • Skill upgrading courses are highly demanded to develop its personnel • Mostly workers trained by CTEVT are recruited • Mostly NATHM trained people are recruited. The respondent had little knowledge about CTEVT products
12	Federation of Nepal Chamber of Commerce and Industry	<ul style="list-style-type: none"> • Workers are not available • Workers are flying to overseas for employment • Training programs are not need based • Workers are not prepared for foreign employment. Those who fly to overseas do not meet the requirements and are forced to work as labors
13	Department of Agriculture	<ul style="list-style-type: none"> • Total employees: 5062 • Technical officers: 799 • Immediate demand: JT/JTA: 1500 • Huge number of lower level of workers are deputed in contract basis
14	NARC	<ul style="list-style-type: none"> • Employed: Scientists: 281 Technical Officers: 304 Technicians: 418 • Vacant Posts: Scientists: 132 Technical officers : 100 Technicians: 60 Unclassified workers: 5000

S.N	Respondents	Easily available	Not available	Remarks
1	Nepal Nursing Council	yes	-	
2	Nepal Health Professional Council	Yes but not in all occupation	-	
3	Hotel Association of Nepal	Yes	10% by five years	Oversupply
4	Nepal Association of Tour and Travel Agent	-	Not available easily	
5	Trekking Association of Nepal	-	Not available in pick season	
6	Nepal Telecom	Available as consulting firms are outsourcing people	-	
7	Nepal Trade Union Congress	-	Not available-	High demand in construction sector
8	Federation of Construction of Nepal	-	Not available	
9	GFONT	-	Not available	
10	Nepal Tourism Board	-	No information	Board related to policy issue
11	Nepal Electricity Authority	-	Skill upgrading is essential	
12	Federation of Nepal Chamber of Commerce and Industry	-	Not available	



Annex 5: Institutions producing skilled workforce

S.N	Respondents	Institutions providing skilled trainings	Remarks
1	Nepal Nursing Council	CTEVT, IOM, KU, BPKISH, Karnali Health Academy	
2	Nepal Health Professional Council	CTEVT: Public and Private institutions	
3	Hotel Association of Nepal	CTEVT, NATHM: Public and private training institutions	Oversupply
4	Nepal Association of Tour and Travel Agent	CTEVT, NATHM: Public and private training institutions	
5	Trekking Association of Nepal	CTEVT, NATHM: Public and private training institutions	
6	Nepal Telecom	CTEVT, DCSI and Board, Labour Training Centre: Public and Private institutions	
7	Nepal Trade Union Congress	CTEVT, DCSI and Board, Labour Training Centre: Public and Private institutions	High demand in construction sector
8	Federation of Construction of Nepal	CTEVT, DCSI and Board, Labour Training Centre: Public and Private institutions	
9	GFONT	CTEVT, DCSI and Board, Labour Training Centre: Public and Private institutions	
10	Nepal Tourism Board	NATHAM	Board related to policy issue
11	Nepal Electricity Authority	CTEVT, DCSI and Board, Labour Training Centre Public and Private institutions	
12	Federation of Nepal Chamber of Commerce and Industry	CTEVT, DCSI and Board, Labour Training Centre: Public and Private institutions	



Annex 6: Emerging occupations of Skilled Workers

S.N	Respondents	Occupations in demand	Projected skilled workforce	Remarks
1	Nepal Nursing Council	<ul style="list-style-type: none"> • Auxiliary Nurse • Midwives • Staff Nurse • BSC/BN Nurse • M.SC/MN Nurse 	No data available	
2	Nepal Health Professional Council	<ul style="list-style-type: none"> • Community Medicine Assistant • Radiographer • Ophthalmic Assistant • Dental Hygienist • Health Assistant • Acupressure... • Aayurved • Lab • Pharmacy etc 	No data available	
3	Hotel Association of Nepal	<ul style="list-style-type: none"> • Waiter/waitress • Housekeeping • Cook • Assistant Manager • Manager • Chef • Front Desk supervisor • Bellboy 	No data available	
4	Nepal Association of Tour and Travel Agent	<ul style="list-style-type: none"> • Ticketing • Marketing • Tour operator • Tour guides 	No data available	
5	Trekking Association of Nepal	<ul style="list-style-type: none"> • Porter • Porter guide • Trekking guide • Mountaineering guide 	No data available	
6	Nepal Telecom	<ul style="list-style-type: none"> • Fiber/optical cable installation • GSM installation • Air-conditioning and generator maintenance • IT technicians • Repair and maintenance technician 	No data available	
7	Nepal Trade Union Congress	<ul style="list-style-type: none"> • Construction workers • Agriculture workers • Manufacturing workers • Service sector • Tourism sector • Hospitality sector 	No data available	
8	Federation of Construction Association of Nepal	<ul style="list-style-type: none"> • Mason • Carpenter • Scaffolder 	No data available	



		<ul style="list-style-type: none"> • Electrician • Plasterer • Tile/marble fitter • Painter • Plumber etc 	
9	GFONT	<ul style="list-style-type: none"> • Mason • Carpenter • Scaffolder • Electrician • Plasterer • Tile/marble fitter • Painter • Plumber etc • Beautician • Embroidery • Handicrafts • Security guards • Sales boys/girls • Aluminum fitter • Heavy equipment driver etc 	No data available
10	Nepal Tourism Board	<ul style="list-style-type: none"> • Tourism related courses 	No data available
11	Nepal Electricity Authority	<ul style="list-style-type: none"> • Ladder carrier • General electrician • Building electrician • Industrial electrician • Installation • Connection • Repair and maintenance technician • Skill upgrading courses 	No data available
12	Federation of Nepal Chamber of Commerce and Industry	<ul style="list-style-type: none"> • Workers related to agro-forest • Workers related to tourism • Workers related to hydro • Manufacturing industries • Processing industries • Fertilizer industry • Herbal processing • Arts and crafts • Paper industry • Service industries 	No data available
13	Department of Agriculture	<ul style="list-style-type: none"> • Technical officers • Technicians • Skilled workers 	
14	NARC	<ul style="list-style-type: none"> • Scientists • Officers • Technicians • Skilled workers 	

Annex 7: Quality of skilled workers or skill gap

S.N	Respondents	Quality “Yes”	Quality “No”	Remarks
1	Nepal Nursing Council	yes		No practical exposure
2	Nepal Health Professional Council			Quality is missing due to negligence of training institutions
3	Hotel Association of Nepal	yes		
4	Nepal Association of Tour and Travel Agent	yes		Practical work needs to be exposed and elective courses should be added
5	Trekking Association of Nepal	yes		Trained are not getting works but untrained are working
6	Nepal Telecom	yes		
7	Nepal Trade Union Congress	yes		But there is mismatch between demand and supply
8	Federation of Construction of Nepal	yes		
9	GFONT	yes		But there is mismatch between demand and supply
10	Nepal Tourism Board	yes		
11	Nepal Electricity Authority	yes		
12	Federation of Nepal Chamber of Commerce and Industry	yes		But there is mismatch between demand and supply



Annex 8: District wise Demand Status

8.1 Dang

S.N	Organizations	Responses	Remarks
1	Hotel Association of Nepal, Dang	<ul style="list-style-type: none"> • High demand of workforce both in national and local market • Skilled workers are not available • Cook and waiter/waitress are in demand • No training opportunities are available • Training are being conducted by hotels themselves 	
2	Nepal Trade Union Congress, Dang	<ul style="list-style-type: none"> • High demand of workforce in agriculture and construction sectors • Workers working in formal sectors are only in record • Demand of skilled workers will be increased by 5 times in the next five years in construction, agriculture, health and industry sectors • Lack of skilled workers • Indian workers are available • Sewing, cutting, leather goods, barber, cooks, improved stove making, beekeeping and drivers are in demand • Access of training to target people and market management of products are to be managed 	
3	Federation of construction association of Nepal	<ul style="list-style-type: none"> • High demand of workers both in formal and informal sectors • 60% workers in formal and 40% in informal are working • Due to foreign employment workers are not available when they are needed • Some workers are available from the district and some are from adjoining districts • More helpers are needed than skilled workers • No training is available • Agriculture,, construction, and commerce need to be improved 	
4	Cottage and Small scale Industries	<ul style="list-style-type: none"> • High demand of skilled workers • High demand of workers in informal sector • Sewing machine repairing, plumbing and veterinary workers are in demand • Indian workers are available • 50% part time and 50% full time employment is existed 	

			<ul style="list-style-type: none"> • Training of complete package to be delivered such as a person who is trained should perform the task of masonry, wiring, plumbing • Skilled workers are not available as demanded • New areas of training are to be identified through market need assessment
5	Ghorahi Municipality		<ul style="list-style-type: none"> • 70% workers are working in formal sector and 30% work in informal sector • Lack of skilled workers • 100% increment of demand of skilled workers in coming five years • Some workers still come from India • No skilled workers in hotel, industry agriculture, construction and other sectors • There are demands of skilled workers in fish pounding, goat keeping, local chicken production, biscuit and noodle industries • Duration of training should be as determined by the curriculum
6	District Committee	Development	<ul style="list-style-type: none"> • High demand of skilled workers • By next five years, there will be enough workers available at local level • Workers come from local areas as well as from adjoining districts • There is high demand of workers in health and engineering • New area of training could be cow keeping, as tries production and computer skills
7	Chamber of Commerce and Industries		<ul style="list-style-type: none"> • High demand of skilled workers • 30% in formal and 70% in informal sectors • Employment opportunities will be increased in the proportionate of population increment and with changing technology • Lack of skilled workers • Workers come from local areas, adjoining districts and India • New are of training: computer operator, tailoring, hair cutting, poultry farm, fish production, dairy products and floriculture, goat keeping and animal farming
8	Diploma Association	Engineering	<ul style="list-style-type: none"> • High demand of skilled workers • 10% employment opportunities will be increased by next five years • Most of workers are available at the local level and others come from different districts • No training is available for building construction



- Workers are easily available
- Duration of training should be at least of two months

8.2 Shankhuwashabha

S.N	Organizations	Responses	Remarks
1	GFONT, Okhaldhunga	<ul style="list-style-type: none"> • Local demand is normal • More opportunities in informal sector • Workers come from outside • 60% in formal and 40% in informal sector • 50% increment in employment opportunity by 5 years • Difficulty to get workers • New areas of training : Mason, Carpenter, Helper, plumber and electrician • Dairy and animal farming are future potential areas 	
2	Akhil Trade Union, Okhaldhunga	<ul style="list-style-type: none"> • High demand of workers in local market since road construction and development works are being done • There is demand of workers both in formal and informal sectors • 60% increment will be there in both sectors by 5 years • Difficulty to get workers • Agriculture and construction are the demanding areas • No quality training 	
3	NGO Federation, Okhaldhunga	<ul style="list-style-type: none"> • High demand of workers in both sectors • 80% informal and 20% formal employment • 25% increment in employment opportunity by 5 years • Workers are available in the district • Market and agent both supply workers • Agriculture and animal farming are high demanding areas • Paper, herbal, dairy are potential areas 	
4	Association of Gold and Silver Business, Okhaldhunga	<ul style="list-style-type: none"> • High demand of skilled workers • High demand of workers in both sectors • 70% in informal sector • Demand will be 25% in both sectors by next five years • Workers are not easily available • Workers are supplied by agents • Trained workers are with quality skills 	
5	Trade Union Congress, Okhaldhunga	<ul style="list-style-type: none"> • High demand of workers in local market • 40% increment of employment opportunity in next five years • Difficulty in finding workers • Workers are available from labor market 	

		<ul style="list-style-type: none"> • Even trained workers are not fully competent • Agriculture and grill industries are growing
6	FNCCI, Okhaldhunga	<ul style="list-style-type: none"> • High demand of skilled workers • By next five years, there will 100% demand of skilled workers • Workers come from local areas as well as from adjoining districts • There is high demand of workers in plumbing, electrician, carpentry and masonry • New area of training could be agriculture and animal keeping
7	Shiddhicharan Municipality, Okhaldhunga	<ul style="list-style-type: none"> • Good opportunity for workers both in local and national level • There is demand in informal sector • 50% increment will be there by next five years • Difficulty in getting workers • Workers are available from labor market • Plumber, electrician, Mason and carpenters are in demand • There is future scope in laundry and restaurant business
8	Middle Hill Transport Association, Okhaldhunga	<ul style="list-style-type: none"> • No demand in local market • Less opportunity of employment in both sectors • 20% increment in employment opportunity by next five years • Workers are obtained from the market and through agents • Labor, electrician and plumber are in demand • Even trained workers need upgrading training
9	Hotel Association of Nepal, Okhaldhunga	<ul style="list-style-type: none"> • High demand of workers at local level • High scope of workers in both sectors • By 25% increment in next five years • Workers are supplied by agents • Driving is highly demanded • Quality training
10	Nepal Health Worker Union, Okhal	<ul style="list-style-type: none"> • High demand at local level but not available and those who are there, are not competent • High demand in both sectors • 33% in formal and 66% in informal sector • By 50% increment in next five years • Difficulty in getting workers • Agents supply workers

		<ul style="list-style-type: none"> • Demanded occupations are electrician, plumber, mason, carpenters, ANM, CMA, lab technicians, health assistants, Nurses and doctors • No relevant training • Health and Agriculture are growing occupations
11	FCAN, Okhaldhunga	<ul style="list-style-type: none"> • High demand of skilled workers • Both sectors need skilled workers • By 50% increment in employment opportunity next five years • Difficulty to get workers • Workers are hired through contact • Construction is high demanding occupation • No quality training • Herbal and mobile, internet are upcoming occupations

8.3 Kavreplanchok

S.N	Organizations	Responses	Remarks
1	FNCCI, Kavre	<ul style="list-style-type: none"> • No skilled workers in NGO/INGO • More workers in Hotel and restaurants but they are being minimized and unemployment problem • No experts in agriculture • People come from other districts in health • Few industries and also come from other districts • Workers are trained from CTEVT 	
2	Dhulikhel Municipality	<ul style="list-style-type: none"> • There are hotel restaurants and more people are being engaged • NGO/INGO are working • Less workers in municipality 	
3	FCAN, Kavre	<ul style="list-style-type: none"> • More people engage in hotel and restaurants • Workers are oversupplied • No industries • Less demand of skilled workers 	
4	Hotel Association of Nepal, Kavre	<ul style="list-style-type: none"> • No job in hotel restaurants • Skilled workers come from national level • There are many interns working as being trained by CTEVT • NGO/INGO are functional 	

8.4 Dolakha

S.N	Organizations	Responses	Remarks
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1	FNCCI, Dolakha	<ul style="list-style-type: none"> • There is demand of skilled workers and are not easily available • HNO/INGO and agriculture are the potential sectors • There is possibility of industries • Skilled workers produced in this districts are being consumed in other districts
2	DDC, Dolakha	<ul style="list-style-type: none"> • NGO/INGO, construction and hotels are the potential sector for employment • Hydro project is under construction • Lack of skilled workers
3	NGO Federation, Dolakha	<ul style="list-style-type: none"> • NGO/INGO and agriculture are the areas of employment • Some skilled workers come outside of district
4	FCAN, Dolakha	<ul style="list-style-type: none"> • Skilled workers are demanded in NGO/INGO and agriculture • Need of such workers • No industries • No other projects

8.5 Sindhupalchowk

S.N	Organizations	Responses	Remarks
1	FCAN, Sindhu	<ul style="list-style-type: none"> • There is demand in NGO/INGO, hotels, tourism and transportation • There is demand in both formal and informal sectors • Normal growth will be there due to slow growth of industries • No availability of skilled workers 	
2	NGO Federation, Sindhu	<ul style="list-style-type: none"> • People of the district are leaving due to earthquake and remoteness • People work in NGO/ING • No industries • Trained people are in health sector • No workers are available • Workers are needed for reconstruction 	
3	Cottage and Small Scale Industries, Sindhu	<ul style="list-style-type: none"> • Normal demand of workers as it is a hilly district • Labors are demanded for reconstruction • NGO/INGO consume more workers 	

8.6 Siraha

S.N	Organizations	Responses	Remarks
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1	FNCCI, Lahan	<ul style="list-style-type: none"> • Labor with skills are demanded • Brick, Ply and Agricultural industries consume more skilled workers • More people engage in informal sector • No skilled workers
2	NGO Federation	<ul style="list-style-type: none"> • No workers available at local level • People engage in industries • Informal sector demands more workers • No skilled workers are available
3	FCAN, Siraha	<ul style="list-style-type: none"> • High demand of skilled workers • Industries, agriculture and construction are the area to consume skilled workers • No skilled workers are available

8.7 Sarlahi

S.N	Organizations	Responses	Remarks
1	FCAN, Sarlahi	<ul style="list-style-type: none"> • High demand of skilled workers • Informal sector demands more skilled workers • No skilled workers are available 	
2	NGO Federation, Sarlahi	<ul style="list-style-type: none"> • High demand but not available • Agriculture is prominent sector for employment • No skilled workers are available 	
3	Hotel Association of Nepal, Sarlahi	<ul style="list-style-type: none"> • High demand of workers • Agriculture and industries are the areas to consume skilled workers • No workers are available 	
3	Lalbandi Federation of Industry and Commerce, Sarlahi	<ul style="list-style-type: none"> • High demand of skilled workers • Industries and construction consume more skilled workers • Informal sector demands more workers • Skilled workers come from all parts of the country 	
4	FNCCI, Hariwan, Sarlahi	<ul style="list-style-type: none"> • High demand of skilled workers • More people engage in informal sector • No skilled workers are available • More labors are demanded 	

8.8 Morang

S.N	Organizations	Responses	Remarks
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1	DDC, Morang	<ul style="list-style-type: none"> • No demand at local level • No industries are in operation • High demand of agriculture workers • Demand in industries and agriculture • No skilled workers • Informal sector demands and consumes more skilled workers • Difficulty in getting skilled workers • They come from institutions, and labor market • High demand: Health and mechanical, • Medium Demand: Metal fabrication, house wiring, plumbing and beautician • Low Demand: handicrafts
2	FCAN, Morang	<ul style="list-style-type: none"> • No skilled workers available at local level • High demand of workers in national level • More people engage in informal sector • 20% employment opportunity will be increased by five years • Engineers and overseer/sub- overseer
3	Chambers of Industry, Morang	<ul style="list-style-type: none"> • Local industries have collapsed • No job for workers • Now raw materials • Informal sector demands more skilled workers • Workers are hired through adv. And open market • Garments and daily consuming goods consume more workers • Fashion design is upcoming area • Skilled workers are to be produced
4	Engineers' Association, Morang	<ul style="list-style-type: none"> • High demand in engineering • Demand in foreign employment and hotel occupation • Informal sector demands and consumes more skilled people • Workers are highly demanded in construction, and transport sectors
5	Biratnagar Sub-metropolitan, Morang	<ul style="list-style-type: none"> • High demand of workers in hotel and physical infrastructure development • Building workers are in demand • High demand in informal sector • Hire through advertisement and open market • High demand in construction sector • Tourism is the upcoming sector
6	GFont, Morang	<ul style="list-style-type: none"> • No work for labor • No employment both in formal and informal sectors • Informal sector demands more people

7	Health Worker Union, Morang	<ul style="list-style-type: none"> No sufficient workers at local level Pharmacy, lab, tourism and industries are the potential areas for employment Informal sector consumes more workers
8	NGO Federation, Morang	<ul style="list-style-type: none"> Lack of skilled workers Not available at local level Government service, NGOs and industries are the areas for employment Social mobilize, sales persons are in demand Informal sector demands more skilled workers Workers are not easily available
9	HAN, Morang	<ul style="list-style-type: none"> No jobs in hotel business Informal sector demands more workers Workers are from ad, personal relation, returnees and training institutions

8.9 Udayapur

S.N	Organizations	Responses	Remarks
1	FNCCI, Udayapur	<ul style="list-style-type: none"> No demand of workforce 70% formal and 30% informal Engineer, overseer and lab assistant are in demand CTEVT and other institutions supply workers 	
2	Cottage industries, Udayapur	<ul style="list-style-type: none"> Lack of mason and carpenter Informal sector is growing 60% formal and 40% informal Masons and carpenters are demanded most 	
3	Nepal Government Officials Union	<ul style="list-style-type: none"> Low job available at local level 80% formal and 20% informal opportunities Construction and agriculture sectors demand more workers 	
4	DDC, Udayapur	<ul style="list-style-type: none"> Easily available at local level 80% formal and 20% informal opportunities 	

8.10 Ilam

S.N	Organizations	Responses	Remarks
1	DDC, Ilam	<ul style="list-style-type: none"> Skilled workers are available 60% formal and 40% informal opportunities Engineers, agri technicians and vet doctors are in demand 	
2	FNCCI, Ilam	<ul style="list-style-type: none"> Workers are available at local level Opportunities are there in both sectors Engineers and agriculture technicians are in demand 	

3	HAN, Ilam	<ul style="list-style-type: none"> Jobs are available in the sector Cook, waiter and helper are in demand Combined training of cook, waiter and bell boy should be provided
4	Tea and Coffee Board	<ul style="list-style-type: none"> High demand of skilled workers Formal 60% and 40% in informal sector engage workers 75% increment will be there both in formal and informal sector by five years Tea experts and agriculture technicians are in demand
5	Ilam Municipality, Ilam	<ul style="list-style-type: none"> Lack of skilled workers Lack of training institutions and lack of specific skilled workers High demand and high employment opportunities Formal and informal both sectors are prominently consume skilled workers

8.11 Jumla

S.N	Organizations	Responses	Remarks
1	FCAN, Jumla	<ul style="list-style-type: none"> Normal demand of workers Workers are available Informal sector is demanding 75% are employed 	
2	HAN, Jumla	<ul style="list-style-type: none"> Lack of workers More demands in informal sector 	
3	FNCCI, Jumla	<ul style="list-style-type: none"> No work Informal sector is demanding Herbal processing has future scope 	
4	Engineers' Association Jumla	<ul style="list-style-type: none"> No employment More opportunities in formal sector Lack of workers in hotel and tourism sectors 	

8.12 Parsa

S.N	Organizations	Responses	Remarks
1	Nepal Health Official Union	<ul style="list-style-type: none"> High demand both in local and national levels in health sector After provincial set up, huge number of workforce will be required Workers are hired though advertisement Doctors, pharmacists and nurses are demanded 	
2	NGO Federation, Parsa	<ul style="list-style-type: none"> High demand in local and national levels 	



		<ul style="list-style-type: none"> Formal and informal both sectors demand more skilled workers Demand will be increased tremendously by five years
3	Cottage Industry, Parsa	<ul style="list-style-type: none"> Trainings are demanded for cottage industries No workers are available Both formal and informal sectors have demand of skilled workers Workers are hired through advertisement Paper bag making is most demanded
4	FCAN, Parsa	<ul style="list-style-type: none"> High demand in local and national markets Both formal and informal sectors are equally important for employment opportunities Workers are hired through advertisement and contact Engineers and computer operators are demanded
5	FNCCI, Parsa	<ul style="list-style-type: none"> High demand in local and national markets Both formal and informal sectors are equally important for employment opportunities Workers are hired through advertisement and contact Engineers and computer operators are demanded
6	HAN, Parsa	<ul style="list-style-type: none"> High demand in local and national markets Both formal and informal sectors are equally important for employment opportunities Workers are hired through advertisement and contact Engineers and computer operators are demanded
7	Nepal Engineer Association, Parsa	<ul style="list-style-type: none"> High demand in local and national markets Both formal and informal sectors are equally important for employment opportunities Workers are hired through advertisement and contact Engineers and computer operators are demanded
8	GFONT, Parsa	<ul style="list-style-type: none"> High demand in local and national markets Both formal and informal sectors are equally important for employment opportunities Workers are hired through advertisement and contact Engineers and computer operators are demanded
9	Nepal Trade Union Congress, Parsa	<ul style="list-style-type: none"> High demand in local and national markets Both formal and informal sectors are equally important for employment opportunities Workers are hired through advertisement and contact Engineers and computer operators are demanded

8.13 Surkhet

S.N	Organizations	Responses	Remarks
1	FNCCI, Surkhet	<ul style="list-style-type: none"> Demand of modern skills 	

			<ul style="list-style-type: none"> • Informal sector such as agriculture, herbal and tourism demand more skill workers • Over supply of skilled workers • New area of employment needs to be explored and train people accordingly
2	Trade Union Congress, Surkhet		<ul style="list-style-type: none"> • High demand of skilled workers • Informal sector is most prominent for employment opportunities • Demand of skilled workers will be increased upto 200% by next five years • Workers come from adjoining districts and even from India • Cement industry, Upper Karnali and hotel restaurants are the areas for employment
3	Akhil Nepal Trade Union, Surkhet		<ul style="list-style-type: none"> • High demand of skilled workers in the local market. Due to unavailability of such workers, Indian workers have been employed • Informal sector demands more skilled workers • Employment opportunity will be increased by 15 % in the next five years • Agriculture sector is promising for employment • Graduates of training are found with quality skills
4	Engineer Association, Surkhet		<ul style="list-style-type: none"> • Good local market for skilled workers • Formal and informal both demand skilled workers • Gradual increment of employment opportunities • Construction sector demands more skilled workers • Quality graduates who are trained
5	NGO Federation		<ul style="list-style-type: none"> • High demand • Informal sector is promising • Demand will be increased • Sewing, cutting, beautician are most demanded training areas • Practical exposure is to be focused • Agriculture sector demands more skilled workers
6	HAN, Surkhet		<ul style="list-style-type: none"> • Sewing, cutting, beautician are most demanded training areas • Practical exposure is to be focused • Agriculture and tourism sectors demands more skilled workers

8.14 Palpa

S.N	Organizations	Responses	Remarks
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1	District Coffee Cooperative Federation, Palpa	<ul style="list-style-type: none"> • Enough workers • Trained workers are with quality skills • Less demand even in future for coffee production
2	District Vegetable Federation, Palpa	<ul style="list-style-type: none"> • Demand of agri-technicians • Weak policy • No effective role of technicians • Need of research centers for hybrid seeds • No skilled workers for making tunnel and green homes • No skilled workers are available
3	District Ginger Federation, Palpa	<ul style="list-style-type: none"> • Workers are over supplied • No market • No training
4	Nepal Cottage and Small Industries Federation, Palpa	<ul style="list-style-type: none"> • High demand of skilled workers • No people are getting training • High turnover due to overseas employment
5	FCAN, palpa	<ul style="list-style-type: none"> • Work is done through contract • Workers learn skills themselves and work • No training is available • 35% in formal and 65% in informal sector occupy employment opportunities

8.15 Rupandehi

S.N	Organizations	Responses	Remarks
1	NGO Federation, Rupandehi	<ul style="list-style-type: none"> • High demand of skilled workers are needed for NGOs • Areas of workers in need are management, tailoring, veterinary, proposal/report writing, NGO management, cooperative, sanitation and pump operators 	
2	FCAN, Rupandehi	<ul style="list-style-type: none"> • High demand of skilled workers • Labors learn skills and work as technician • No agencies working to connect market and workers • Some workers are trained by CTEVT • Workers are hired through personal contact • More workers are flying to overseas as a result workers are not easily available. 	
3	Nepal Engineer Association, Rupandehi	<ul style="list-style-type: none"> • CTEVT graduates are modest in quality. They lack practical knowledge • More Indian workers working • 30% formal and 70% informal employment opportunities are there in the district 	
4	FNCCI, Rupandehi	<ul style="list-style-type: none"> • Lack of training at worker level • 40% in formal and 60% in informal employment opportunities 	

		<ul style="list-style-type: none"> • Efficiency of workers is medium type • Workers are to be prepared as per changing technology • More than 1600 technicians are in demand alone in Rupandehi district
5	Trade Union Congress, Rupandehi	<ul style="list-style-type: none"> • Workers are over supplied • Employment opportunities are: 35% formal and 65% in informal sectors
6	HAN, Rupandehi	<ul style="list-style-type: none"> • Workers are over supplied in hotel sector • More than 2000 workers are needed in Rupandehi • Employment opportunities are 33% and 67% in formal and informal sectors respectively

8.16 Kailali

S.N	Organizations	Responses	Remarks
1	CPN-UML Party Office, Kailali	<ul style="list-style-type: none"> • After earthquake, huge demand of workers both in local and national level • Hotel: 70% formal and 30% informal, Construction: 30% formal and 70% informal and Agriculture: 60% formal and 40% informal • By five years, 50000 workers in formal and 20000 workers in informal sectors needed • CTEVT should focus on quality production • More Indian workers are there • Nursing, engineering and agriculture are more demanded area • Instructors are to be qualified and monitoring and supervision should be effective 	
2	FNCCI, Rupandehi	<ul style="list-style-type: none"> • High demand of skilled workers at local level • Hotel: 70:30 percent in f/if, Resort: 55:45 percent in f/if and beautician 40:60 in f/if • By five years, 60,000 in formal and 25,000 in informal workers needed • Moderate level of availability of workers 	
3	NC Party Office, Kailali	<ul style="list-style-type: none"> • Lack of skilled workers at local level • Agriculture: 65% F and 35% If. • Hotel: 70% F and 30% If • Industry: 30% F and 70% If • By five years, the demand will be 80,000 in formal and 30,000 in informal • IT, agriculture, hydro and forestry are the areas where more skilled workers will be demanded 	
4	FCAN, Kailali	<ul style="list-style-type: none"> • High demand of skilled workers at local level 	

		<ul style="list-style-type: none"> • Road: 10% F and 90% If • Construction: 20% F and 80% If • By five years, 5000 in formal and 50,000 in informal workers will be demanded • Lack of skilled workers • Carpenters, masons, plumbers, electricians and textile mechanics are in demand
5	Cottage and Small Industries Federation, Kailali	<ul style="list-style-type: none"> • High demand of skilled workers at local level • Agri: 30% F and 70% If • Poultry farm: 40% F and 60% If • Beauty parlor: 85% F and 15% If • By five years, 5500 in formal and 70,000 in informal workers will be demanded • Lack of skilled workers • Carpenters, masons, plumbers, electricians and textile mechanics are in demand
6	NGO Federation, Kailali	<ul style="list-style-type: none"> • High demand of skilled workers at local and national levels • NGOs: 60% F and 40% If • By five years, demand will be increased gradually • Lack of skilled workers • Carpenters, masons, plumbers, electricians and textile mechanics are in demand • CTEVT graduates are moderate in quality • Some workers are still coming from India

Annex 9: List of Key Informant (KI) interviewed

S.N	Name	Designation	Organization	Contact Number
1	Laxmi Rai	Registrar	Nepal Nursing Council	9851079517
2	Khub Narayan Biswas	Admin Officer	Nepal Health Professional Council	9841427318
3	Nava Karki	Senior Admin Officer	Hotel Association of Nepal	9841273353
4	Shradha Chhetri	Chief Media Officer	Nepal Association of Tour and Travel Agent	14418661
5	Karna Bahadur Lama	General Secretary	Trekking Association of Nepal	9841529747
6	Bhanu Raj Shrestha	Manager	Nepal Telecom	14784006
7	Ram Mani Pokharel	Office Secretary	Nepal Trade Union Congress	9841350960
8	Krishna Bahadur Pokharel	Chief Executive Officer	Federation of Construction of Nepal	-
9	Hari Datta Joshi	Vice-president	GFONT	9741150985
10	Nabin Pokharel	Senior Assistant Manager	Nepal Tourism Board	-
11	Mukunda Pd Sapkota	Officer	Nepal Electricity Authority	14153089
12	Hansha Ram Pandey	Director	Federation of Nepal Chamber of Commerce and Industry	9851007125
13	Kishor Acharya	Chairman	Trade Union Congress, Dang	9857832372
14	Yadav Choudhary	Secretary	FCAN, Dang	082605072
15	Ganga Mani Sharma	Officer	CSI, Dang	082560004
16	Prem KC	Information Officer	Ghorahi Municipality	082560700
17	Basudev Acharya	Plan & Admin Officer	DDC	082565050
18	Suraj Budathoki	Officer	FNCCI, Dang	082560630
19	Rudra Bahadur Dangi	Chairman	Hotel Association, Dang	9847913510
20	Indra Kumaar Dhital	Chairman	Diploma Engineer's Association	9857832788
21	Kul bahadur Shrestha	-	FCAN, Khandbari	9842094105
22	Khem Raj Niroula	-	Khandbari Municipality	9852051707
23	Gobardhan Tikhatri	-	NEPPC Union, Khandbari	9841451272
24	Ram Sharan Acharya	-	DDC, Khandbari	029960045
25	Ramesh Bhattarai	-	FNCCI, Khandbari	9852051734
26	Hariswor Thapa	-	Association of Transport	9852023821
27	Mani Rasaili	-	Shakhushabha Gold and Silver Business Association	9860534065
28	Man Bahadur Limbu	-	NGO Federation, Khandbari	9852051608
29	Nava Raj Dahal	-	GFONT, Okhaldhunga	9842929259
30	Lekha Nath Fuyal	-	Akhil Trade Union, Okhal	9842972784
31	Prakash Katel	-	NGO Federation, Okhal	9842929158
32	Yuba Raj Gajmer	-	Association of Gold and Silver Business, Okhal	974306333
33	Gyanendra Rumdali	-	Trade Union Congress, Okhal	9852840400
34	Gyanendra Maske	-	FNCCI, Okhal	9842931344

35	Rajan Ghimire	-	Shiddhicharan Municipality	037520213
36	Milan Khatri	-	Middle Hill Transport Association, Okhal	037520630
37	Thagendra Raj Rai	-	Hotel Association, Okhal	9842563802
38	Indira Goutam	-	Nepal Health worker Union	9852840593
39	Yuba Raj Gajmer	-	FCAN, Okhal	974306333
40	Dil Bahadur Shrestha	Chairman	FNCCI, Kavre	9851020903
41	Shankhabudha Lama	Chairman	FCAN, Kavre	9851054939
42	Prem Kantha Shrestha	Chairman	HAN, Kavre	011490114
43	Rajeswor Manadhar	Chairman	FNCCI, Dolakha	049421218
44	Sita Pariyar	LDO	DDC, Dolakha	049421142
45	Dharmendra Moktan	Chairman	NGO Federation, Dolakha	9851026056
46	Rameswor Upreti	Chairman	FCAN, Dolkha	-
47	Lil Bahadur Thapa	Chairman	FCAN, Sindhu	9851098242
48	Bijaya Shrestha	Chairman	NGO Federation, Sindhu	9851160381
49	Kalpana Sharma	Chief	CSIB	-
50	Ashok Agrwal	Chairman	Lahan FNCCI	9852830251
51	Gobinda Bista	Chairman	NGO Federation, Siraha	9842825946
52	Rash Lal Raya Yadav	General Secretary	FCAN, Siraha	9852832000
53	Surendra Pd Singh	Chairman	FCAN, Saerlahi	9744016248
54	Yadav Sarkar	Chairman	NGO Federation, Sarlahi	9842825946
55	Baikuntha Sapkota	Chairman	HAN, Sarlahi	-
56	Nava Raj Mishra	Chairman	FNCCI, Lalbandi	9854037137
57	Ram Bhakta Shrestha	Chairman	FNCCI, Hariwan	9854035126
58	Gopi Pd Ghimire	Chief Officer,	- Morang	021472964
59	Pralad Pokharel	Member	FCAN, Morang	-
60	Shiva Shankar Agrwal	Chairman	CIM, Morang	-
61	Binod Ojha	Member	Engineer Association	-
62	Punam Dahal	Chief, Social Dev	., Birat Sub-metropolitan	-
63	Kishor Dhamala	Chairman	GFONT	-
64	Pitambar Osti	Acting LDO	DDC, Morang	9852022501
65	Bhola Shankar Giri	Member	Health Worker Union	-
66	Umesh Biswokarma	Central Member	NGO Federation	9842026900
67	Nimesh Pokharel	Member Secretary	HAN, Morang	-
68	Gajendra Kumar Bhagat	Chairman	FNCCI, Udayapur	9852835031
69	Gopal Pd Sharma	Director	CSIB, Udayapur	035820202
70	Man Bahadur Ban	Chairman	GON Official Union	9842825078
71	Shyam Kumar Sundas	Admin Assistant	DDC, Udayapur	9842882941
72	Chhabi Lal Khatiwada	Admin Officer	DDC, Ilam	027520848
73	Hemanta Goutam	Chairman	FNCCI, Ilam	9852680170
74	Yam Kumari Limbu	Saving worker	HAN, Ilam	027521692
75	Dev Kumar Singh	Planning Officer	Tea and Coffee board	9852681831
76	Bhimir Shrestha	Ilam Municipality, Ilam	Urban Dev. Expert	9841336854

77	Ashok Kumar Shrestha	Chairman	FCAN, Jumala	9848300597
78	Tilak Mahat	-	HAN, Jumla	9868345825
79	Paras Upadhyaya	Chairman	FNCCI, Jumla	9848355790
80	Nripa Raj Joshi	Chairman	Engineers' Association, Jumla	-
81	Sudip Lama	-	Nepal Health Worker, parsa	9845197951
82	Ajaya Kuswaha	-	NGO Federation	9851174904
83	Basanta Magar	-	CSIB, Parsa	-
84	Ramananda Chourasiya	-	FCAN, Parsa	-
85	Pradip Kediya	-	FNCCI, Parsa	9855021686
86	Dipak Man Shrestha	-	HAN, Parsa	051527777
87	Suresh Thakur	-	NEA, Parsa	9845230764
88	Yagya Bdr Khadka	-	DDC, Parsa	9841340123
89	Ramananda Kurmi	-	GFONT, Parsa	9804227308
90	Bala Ram Kurmi	-	NTUC, Parsa	9855021243
91	Tanka K Shrestha	Chairman	FCAN, Dhading	9851082368
92	Raja Ram Silwal	Chairman	HAN, Dhading	-
93	Damodar Aryal	Chairman	Genchha Cooperative	9751020450
94	Rohit Bhandari	Office Chief	FNCCI, Dhading	9851177844
95	Kumar Dhakal	Planning Chief	Nilakantha Municipality, Dhading	9841526538
96	Kol Prasad Goutam	Infor. Officer	DDC, Dhading	-
104	Ganesh Karki	Program Coordinator	CNCCI, Surkhet	083520300
105	Samrat Goutam	Chairman	Trade Union Congress, Surkhet	9802051810
106	Yam Raj Malla	Member	ANTU, Surkhet	9848123270
107	Miti Lal Gupta	Treasurer	NEA, Surkhet	9848028240
108	Hari Adhikari	Chairman	NGO Federation, Surkhet	9848022286
109	Yogendra S. Thapa	Member	HAN, Surkhet	9858050163
110	Ek Prasad Bhandari	Chairman	District Coffee Cooperatice, palpa	-
111	Tri Ratna Shakya	Chairman	NSCSI Fed. Palpa	9847029525
112	Barun Prasad Regmi	Member	FCAN, Palpa	-
113	Krishna GC	Chairman	District Ginger Federation, Palpa	-
114	Tika Ram Bhandari	member	District Vegetable Federation, Palpa	-
115	Sumitra Sharma	Chairman	NGO Federation, Rupandehi	9857028021
116	Top Bhadur Rayamajhi	Chairman	FCAN, Rupandehi	-
117	Dhani Ram Choudhary	Member	NEA, Rupandehi	-
118	Mahesh Man Shingh	Chairman	FNCCI, Rupandehi	9857020534
119	Samundar GC	Chairman	HAN, Rupandehi	9847033389

120	Kaji Man Shrestha	Chairman	Trade Union Congress, Rupandehi	9851025160
125	Him Karna B K	Chairman	NGO Federation, Kailali	9848427337

Annex 10: Projection Sheets for Private formal Sector

SN	Name of occupation	Estimated Figure of	
		Currently Working	Annual Requirement
1	Production Skilled Labour	120,000	17,000
2	Mason	82,000	10,000
3	Carpenter	80,000	10,000
4	Social Mobilizer	75,000	10,000
5	Weaver	72,000	8,000
6	Electrician	45,000	5,000
7	Beautician	38,000	10,000
8	Driver	36,000	4,000
9	Plumber	34,000	3,500
10	Mechanic	30,000	7,000
11	Tailoring	28,000	5,000
12	Parlor	21,000	2,000
13	Machine Operator	21,000	2,500
14	Supervisor	18,000	2,500
15	Brick Molding	17,000	2,500
16	Loader	17,000	2,000
17	Miller	16,000	4,000
18	Overseer	15,000	2,200
19	Mobile Repairer	13,000	4,000
20	CMA	12,000	2,000
21	Staff Nurse	12,000	3,000
22	Computer Operator	11,000	2,000
23	Production Operator	11,000	1,500
24	JTA (Agriculture)	10,000	3,000
25	Metal Sculpture	10,000	4,500
26	Welder	10,000	2,700
27	Packaging Staffs	9,000	2,200
28	Dairy Assistant	8,000	1,200
29	Weaver/Tailor	8,000	1,000
30	Baker	8,000	2,200
31	Mechanical Engineer	7,500	800
32	Pharmacist	7,000	1,200
33	Wood Carving	7,000	1,500
34	Gardener	7,000	1,800
35	Computer Technician	7,000	3,400
36	Waiter	7,000	1,000
37	Technician	6,500	1,000
38	Ticketing	6,000	800

39	Engineer	6,000	800
40	ANM	6,000	800
41	Poultry Worker	5,500	800
42	Health Assistant	5,500	800
43	Lab Technician	5,200	750
44	Cutting	5,000	700
45	Heavy Equipment Operator	4,700	700
46	B.P.H.	4,500	600
47	B. Pharma	4,200	600
48	Steel Craft Maker	4,200	600
49	Radiographer	4,000	570
50	Field Guide Tourist	4,000	570
51	Security Guard	4,000	560
52	Fiber Processor	4,000	550
53	Thanka Painter	1,200	200
54	Veterinary Technician	4,000	500
55	Fashion Designer	4,000	530
56	Leather Shoes/Craft Maker	4,000	530
57	Sub-overseer	3,500	500
58	Cook	3,500	500
59	Bamboo Furniture Maker	3,500	500
60	Washer Man	3,300	500
61	Engineer	3,300	500
62	Housekeeper	3,000	400
63	Painter	3,000	400
64	Repairer Assistant	3,000	400
65	Doctor	2,800	400
66	Receptionist	2,600	400
67	Potter	2,500	350
68	Program/ Institutional Facilitator	2,300	350
69	General Medicine	2,300	350
70	Lab Assistant	2,200	300
71	Dyeing	2,200	300
72	Cartoon Box Maker	2,100	300
73	Trainer	2,100	300
74	Livestock Technician (Junior)	2,000	300
75	Pathologist	1,800	250
76	Cabin Crew	100	15
77	Civil Engineer Teacher	1,800	250
78	Public Health Teacher	1,800	250
79	Binding	1,800	250

80	Metal Engineer	1,800	250
81	Butcher	1,800	250
82	Sewing	1,800	250
83	Painter	1,800	250
84	General Technician	1,700	230
85	AME	1,500	230
86	Veterinary JTA (Senior)	1,500	230
87	Molding + Baking	1,400	200
88	Seed Technician	1,400	200
89	Paper Maker	1,400	200
90	TV Radio Repairer	1,400	200
91	Program Officer	1,400	190
92	Refrigeration Department	1,400	190
93	Doll Maker	1,400	190
94	Rafting Guide	1,300	180
95	Electronic Technician	1,300	180
96	Computer Teacher	1,300	175
97	Entrepreneurship Development Facilitator	1,100	165
98	Nepali Paper Processor	1,100	150
99	Maintenance	1,100	150
100	Inspector	1,000	150
101	Carpet Fitting	1,000	150
102	Product Technician	1,000	150
103	Fish Feeding	1,000	150
104	Computer engineer	1,000	150
105	Bee Keeper	1,000	140
106	Care Taker	900	130
107	Airport Operator	300	30
108	Pilot	900	120
109	Ice-Cream Maker	800	120
110	Fitter	800	120
111	Grinding	800	110
112	Front Office	800	100
113	Finisher	800	100
114	Assistant Manager	800	100
115	Computer Hardware/Software	800	100
116	Technical Teacher	700	100
117	Officer Staff	700	100
118	Quality Control	700	100
119	Agroforest Technician	700	100

120	Filter	700	100
121	Fish Technician	700	100
122	Furniture Colourer	700	Not Applicable
123	Hatchery Technician	700	Not Applicable
124	Ground Control	700	Not Applicable
125	Reservation	600	Not Applicable
126	Mixing Operator	600	Not Applicable
127	Site In-charge	600	Not Applicable
128	B. Nursing	600	Not Applicable
129	Teacher	600	Not Applicable
130	R&D In-charge	600	Not Applicable
131	Electrical Engineer	500	Not Applicable
132	Agriculture Technician	500	Not Applicable
133	Early Childhood Development	500	Not Applicable
134	Child Friendly Skills	500	Not Applicable
135	Sweeper	500	Not Applicable
136	Operator	500	Not Applicable
137	Denting	500	Not Applicable
138	B. Sc. Ag.	500	Not Applicable
139	Agriculture Teacher	500	Not Applicable
140	Coordinator	500	Not Applicable
141	Wiring	500	Not Applicable
142	I. Sc. Ag.	500	Not Applicable
143	Electrical Appliance Repairer	500	Not Applicable
144	Software Engineer	500	Not Applicable
145	Parenting Orientation	450	Not Applicable
146	Transportation Department	450	Not Applicable
147	Ophthalmic Assistant	450	Not Applicable
148	Shift In-charge	450	Not Applicable
149	X-ray Technician	400	Not Applicable
150	Servicing Mechanic	400	Not Applicable
152	Special Potter	400	Not Applicable
153	Shorting Manager	400	Not Applicable
156	Sand Witch Maker	400	Not Applicable
157	Special Diploma	400	Not Applicable
158	Veterinary Doctor	400	Not Applicable
159	Room Maid	600	Not Applicable
160	Health Teacher	350	Not Applicable
161	Mountaineer Guide	350	Not Applicable
162	Food and Beverage	350	Not Applicable
163	Nepali Mat Weaver	350	Not Applicable

164	Steel Cutter	350	Not Applicable
165	M Pharma	350	Not Applicable
166	Medical Technician	350	Not Applicable
167	Eye Assistant	350	Not Applicable
168	Fabricating	350	Not Applicable
169	Junior helper	350	Not Applicable
170	CAF	350	Not Applicable
171	Auto Mechanics	350	Not Applicable
172	Mechanical Engineer	350	Not Applicable
173	Laundry Boy	350	Not Applicable
174	Entrepreneurship Trainer	250	Not Applicable
175	B. Pharma	250	Not Applicable
176	Ophthalmic Officer	250	Not Applicable
177	Pallet Operator	250	Not Applicable
178	Technical Officer	250	Not Applicable
179	AHW	250	Not Applicable
180	Pasmina Weaver	250	Not Applicable
181	Counter	250	Not Applicable
182	Flight Dispatcher	200	Not Applicable
183	Medical Representative	200	Not Applicable
184	Land Surveyor	200	Not Applicable
185	D. Pharma	200	Not Applicable
186	Lethe Operator	200	Not Applicable
187	Dying	200	Not Applicable
188	Print Designer	200	Not Applicable
189	Baidhya	200	Not Applicable
190	Medical Officer	200	Not Applicable
191	Electrical Engineering	150	Not Applicable
192	Civil Engineer	150	Not Applicable
193	Bell Boy	150	Not Applicable
194	Thread Processer	150	Not Applicable
195	Ironing	150	Not Applicable
196	Chemical Engineer	150	Not Applicable
197	Roll Man	150	Not Applicable
198	Mechanical Engineer	150	Not Applicable
199	Junior Fitter	150	Not Applicable
200	Health Assistant Teacher	150	Not Applicable
201	Room Boy	150	Not Applicable
202	M. Sc. Ag./ Agriculture Engineer/ Ag. Teacher	150	Not Applicable
203	Meter Reader	100	Not Applicable

204	Sub-Pump Operator	100	Not Applicable
205	Agriculture Assistant Teacher	100	Not Applicable
206	Eye Doctor	100	Not Applicable
207	B. Pharma	100	Not Applicable
208	Computer Software	100	Not Applicable
209	Hardware Engineering	100	Not Applicable
210	Diner	100	Not Applicable
211	Sorting	100	Not Applicable
212	Stacking	100	Not Applicable
213	Oven Operator	100	Not Applicable
214	Boiler Operator	100	Not Applicable
215	Mobile Crane Operator	100	Not Applicable



Annex 11A: Questionnaire

Council for Technical Education and Vocational Training Sanothimi, Bhaktapur

Labour Market Survey to Identify the Emerging Needs of Technical Human Resources in the Country Questionnaire for Enterprises

Dear Entrepreneurs,

Availability of skilled human resources as per the need of labour market is the foundation for overall economic development of the country. Wide range of actors of society including government, individual trainees and their families, business community and industries can be benefited by the market relevant skills training, however there finds some gaps between the skills of the workforce and needs of employers. This study is therefore designed to bridge this gap by identifying the actual needs of employers. The information you provide is just for macro level analysis which will not be used for any other purpose. CTEVT therefore requests and expects actual information of your enterprise regarding the availability and needs of skilled human resources. Many thanks for your cooperation.

- CTEVT, Research and Information Divisions

Name of the Interviewer: _____

Date of Interview: _____

Section 1: Basic Information

a. Name of the employment unit:				
b. Address:				
c. Contact Numbers:				
d. Establishment Year:				
e. Name of the Sector		f. Name of sub-sector <i>(Please refer annex 1 for list of sub-sector)</i>		
		Occupational	Employment Unit	Economical
1. Engineering	3. Tourism			
2. Agricultural	4. Health			

Section 2: Employment related information

1. What is the total number of staffs in your company/ enterprise? ___Males ___Females
2. Please, provide the disaggregated information regarding the technical staffs as per the following table?

3. Current Workforce	Name of Occupations	Gender wise		Engagement Type		Type of TVET /Qualification			Total
		Male	Female	Full time	Part Time	Dip	TSLC	Vocational	

4. In service Training received by the technicians (in last FY)				Type of Training			Number of Trained staffs		
5. Growth status of business in last 5 years? (Based on observation)				1. Booming 2. Status quo 3. Shrinking					
Mention reasons for specific response in Q5:									
6. Growth prospects of the business in next 5 years? (Based on their opinion)				1. Booming 2. Status quo 3. Shrinking					
Mention reasons for specific response in Q6:									
7. Have you developed any business plan for coming years?				1. Yes 2. No		If yes, Pls mention number of years _____ years			
8. How many new staff will you hire in next 5 yrs?	Name of Occupations	Gender wise		Engagement Type		Type of TVET /Qualification			Total
		Male	Female	Full time	part Time	Dip	TSLC	Vocational	
9. How many additional staffs were recruited or made redundant during the last year?				Recruited			Made Redundant		
				Occupation		No	Occupation		No

10. Availability of required human resources		<input type="checkbox"/> Over-supplied Moderate Supply <input type="checkbox"/> Under-supplied	
What is the reason for your response Over-supplied or Under supplied		Reasons:	
11. What is the average proficiency level of the staffs?	<input type="checkbox"/> Very Poor	<input type="checkbox"/> Poor	
	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Good	
	<input type="checkbox"/> Excellent		
If you are not satisfied, please mention the reasons?			
12. What are the major skills gaps with existing staff?	Name of Occupations	Gap Area	
13. Could you mention probability of any technological innovations at this sector in near future? Please mention.		1 Yes, I see some probability. 2 No, I don't see any probability.	
14. What are the new skills/occupations possibly appear in near future?			



Occupational sub-sector:

Occupational Sub-sector	Employment Unit Sub-sector	Economic Sub-sector
1. Automobile	1. Banks & Financial	1. Agriculture
2. Business/ Service	2. Industries	2. Fishing
3. Computer	3. Cottage industries	3. Mining & Quarrying
4. Construction	4. Contractor Agencies	4. Manufacturing
5. Construction Equipment	5. Hospitals	5. Electricity Gas and Water
6. Electrical	6. Polyclinics/Pathologies	6. Construction
7. Electronics	7. Pharmacies	7. Wholesale and Retail trade
8. Forestry	8. Pharmaceutical Industries	8. Hotel and Restaurant
9. Handicrafts	9. INGO/NGOs	9. Transport storage and Communication
10. Health	10. Education /Training Institutions	10. Financial Intermediation
	11. Hotels/Resorts	11. Real estate renting and business activities
	12. Travel/Tracking/ Rafting agencies	12. Public administration and defense
	13.	13. Education
		14. Health and social work
		15. Other community, social and personal service

Annex 11B: Checklists for FGD and KII

Name of the Interviewer:

Date of Interview:

Name of the Interviewee (Key Informants)

Name of Organization and address:

Designation:

Contact No:

Sector:

Sub-sector:

1. Introduction and Rapport building
2. Sharing of Objective
3. What is the situation of national and local demand of workforce in the sector?
4. Where are the employment opportunities of the sector both formal and informal sector?
5. How many numbers are employed in formal sector and how many of them in informal sectors?
6. What will be the growth trend and demand for the coming 5 years for both formal and informal sector?
7. Are the workforces readily available?
8. Where from do we get the workforce?
9. What are the most demanded occupations? And number of workforce demand in each occupation?
10. Are the skills acquired in the training institutes adequate (Quality of training)? If not what are the major missing skills gap?
11. What are the new emerging occupations in the sector?
12. Any suggestions regarding the training?

Annex 12: List of Participants of Interaction Program

Council for Technical Education and Vocational Training
Research and Information Division
 Sanathuni, Bhaktapur

Sharing of Draft Report
LABOUR MARKET SURVEY
 (Analysis of Emerging Needs of Technical Human Resources in the Country)

Date: 2072/12/23
Venue:- Alpha Beta Complex, New Baneshwor Kathmandu
Time: 8:30 am to 11:00 am
Organizer:
 CTEVT, Research and Information Division
 (In support of World Bank/EVENT Project)

List of Participants

S. N	Name of Participants	Office/Association Organization	Position	Contact Address		Signature
				Mobile Number	Email/Mail	
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2						
3						
4						
5						
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7	Dr. Shesh Ramon Neupane	Accountability Initiative P. LTD.	CHAIRPERSON	9851193857	sneupane.nrp@gmail.com	
8	Dr. Mahadeb Poudel	Department of Agriculture	Senior Agri-Econ mist	9845684896	mahadeb200@ntnu.com.np	

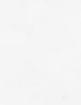
1

S. N	Name of Participants	Org./Association Organization	Position	Contact Address		Signature
				Mobile Number	Email/Mail	
9	Ramesh Banskat.	CTEVT	Director	9851238000	r.banskat@hotmail.com	
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15	Dobari Lal Shilakar	CTEVT	Director	9841270870	skbanskat@yahoo.com	
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20	Hemuram Banskat	Procc	Director	9851007125	kansae@ncc.org.np	
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23	Rama Devi Shrestha	WEAN	Treasurer	9849025198	RamadeviShrestha@electrical.com.np	
24	Rekha Fryal	WEAN. M. Cooperative	President	9851063599	rsi@gmail.com	
25	Arati Nepal	WEAN. Board Board member	Board member	98411961737	nepalazla@hotmail.com	

S. N	Name of Participants	Org./Association Organization	Position	Contact Address		Signature
				Mobile Number	Email/Mail	
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27	Bhuvaneshwar Dhungana	CTEVT	Director	9856088235	bhuvaneshwar@gmail.com	
28	Umasi Adhikari	Accountability Inhabitation	Programme Director	9847152070	umeshadrikan77@gmail.com	
29	Chandrawati Neupane	ACTH	Managing Director	9857236838	neupanechandrawati@gmail.com	
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36	Purna N. Rampitara	Nepal Micro Hydropower Development Association	CEO	9841619699	nhrampitara@gmail.com	
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38	Krishna S. Basnet	NEA	Members	9851045319	krishnasbasnet@gmail.com	
39	Nirjhar Bhattarai	Nepal Telecom	Dy. manager	9851083456	n.bhattarai@ntc.net.np	
40	RUPRA SHARMA	F-CAN	V.P.	98576-2777	rupra.sharma1962@gmail.com	
41	श्याम शर्मा	H.P. F.N.	शेडिअर	985144220		
42	श्याम शर्मा	H.P. F.N.	शेडिअर	9851095506		

S. N	Name of Participants	Org. / Association Organization	Position	Contact Address		Signature
				Mobile Number	Email / Mail	
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45	GUSWITA JOSHI	Beauty Teacher Beauty Clinic	owner	9841328158	gusthilitgachic@yahoo.com	[Signature]
46	Gagan Ujjan	Oscar Guit College College of Film Studies	Director	9851041549	Sggandgmg@gmail.com	[Signature]
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56	Sunil Sigdel	r	Asst. Instructor			[Signature]
57	NISHA MISHRA	11	A. Officer	9857016623		[Signature]
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Producers NPPM

S. N	Name of Participants	Org. / Association Organization	Position	Contact Address		Signature
				Mobile Number	Email/Mail	
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62	Apal Bhandari	ALM	Enumerator	9844715894	bhandari.apal@alm.gov.in	
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64	Dr. B S Suresh	SKILLS MISE/INDP	NPM	9851000642	bsuresh@yakov.com	
65	Mr. Manoj Shastri					
66	Mr. Preethi Gungarot				9841550298	
67						
68						