



Rural Enterprise and Remittances Project RERP; SAMRIDDHI



A Report on Market Opportunity Survey for Implementing Skills and Apprenticeship Training Under SAMRIDDHI Project

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Executive Summary

The **objective** of the this study was to identify and recommend the potential occupational sectors, mostly demanding occupations to implement trainings under each sector in the SAMRIDDHI implementing market clusters in order to ensure employment of the training graduates. The objective was also to identify potential sectors for apprenticeship training and to explore existing problems/constraints in each of the occupational sectors.

Methodology included both primary survey and relevant secondary data and information collection from the relevant sources. Interviews, Focus Group Discussions and direct observations were used to collect the primary data from employers, employers association, local bodies of different districts, district chamber of commerce and industries, practitioners, agro business promotion centres, research centres and sectoral industries. Likewise Hotels and Hotel Associations, Contractors Associations, Federation of Cottage and Small Industries, District Coordination Committees, construction related industries and factories, unemployed youths, electronics business associations, automobile workshops, vehicle dealers, show rooms/automobile traders, automobile trade unions, garment industries, spinning mills, jute mill Industries, Dhaka Udhyogs, tailoring shops and training centres were other key informants. The inputs from the respondents and their names are presented as annex.

Organization of the findings include: i) national context; ii) market trend; iii) employment opportunities; iv) problems and constraints and v) recommendations.

There are limited researches and studies on the employment generation and workforce survey carried out in the Nepali context. Unemployment, underemployment and poverty are the main challenges of Nepalese economy. As per the national economic survey 2017 of NPC, there is a very high underemployment (30 %) and 2.3 % of total population are fully unemployed. More than 500000 persons are estimated as annual labour market entrants and majority of them are not gainfully employed due to lack of appropriate skills. However, skills training offered by training providers are very negligible (nearly 10%). Out of those who have received training, considerable number of graduates are also unemployed due to the mismatching of the skills delivered by the training institutes and skills required by the job market. Lack of skilled human resources is conceived as a main responsible factor for slow process of industrialization. Industrialists are found frustrated due to political influence, trade unions and lack of appropriate protections from such influences. However, high demand for skilled workers was persistently shared by so many respondents and the employment market is ready to consume a considerable number of such workforces. This applies in almost all sectors under study. However, only 6 (30%) out of 20 industries of different sectors visited to identify the potential for apprenticeship training were positive to work on apprenticeship mode of training.

The study covered Samriddhi implementing 16 districts: eight (Bhojpur, Terhathum, Morang, Sunsari, Dhankuta, Okhaldhunga, Khotang and Udaypur) from province 1; seven (Mahottari, Saptari, Dhanusha, Siraha, Sarlahi, Rautahat and Bara) from province 2 and Sindhuli from Province 3.

The sector analysis study mainly covers Construction, Agriculture, Mechanical, Electrical, Automobile, Communication and Information technology, Tourism and Hospitality, Textile (Garment and Tailoring). Sub/sector specific findings are presented in the following paragraphs.

Construction sector relates with construction of new housing, apartments, roads, canals, railway lines, airports and hydropower projects and plays crucial role in the development of infrastructure that is essential for the development of all other sectors. Reconstruction in the post disaster phase has further multiplied the need of skilled workforce in the sector. The sector and

the construction industries are suffering from the lack of skilled workforce. There are around 1950 micro to small construction industries in addition to the large contractors firm. There is high turnover of skilled workers creating further shortage of skilled workforce in the sector.

Based on the study, it is estimated that around 19000 additional construction sector skilled workers are required in the 16 Samriddhi implementing districts to fulfil the need of the existing growth rate of the sector. There is market for skill workers in all locations of project districts and mostly in urban areas and in locations where development projects are focused at. Mostly demanding occupations in the sector are Brick Layer Mason, Plumber, Furniture maker, construction workers, Scaffolders, Carpenters, Gabion Weavers, Tile and Marble Fitter, Building Painters etc.

Agriculture sector is marked as a back bone of the Nepalese economy and more than 60 % of the population is still engaged in agriculture occupation. Within the project implementing 16 districts, it was found that there are 6561 agro-based industries and lack of skilled technical human resource is identified as major gap among other gaps in agro-based enterprise. There is high potential for green vegetable, cash crops and spices production and business. There are specific pocket areas for specific agro-production requiring additional skilled workforce in the sector. Lack of skilled human resource for commercial farming and technicians to support the farmers is also another burning issue in the sector. Numbers of Hat bazaars are in operation in the project districts which help promoting the agro products.

It is estimated during the course of the study that more than 20000 additional skilled workers are required to fulfil the need of the skilled work force in the Sector within the project districts. Poultry Farming Technician, Off Season Vegetable Farmer, Dairy Technician, Junior Technical Assistance, Village and Animal Health Workers, Bee Keepers, Community Livestock Assistance, Food Processors are the mostly demanded occupations in the project area.

Mechanical sector is closely related and interlinked to industrial manufacturing, infrastructure development, construction industries and automobile sectors. Development of railways, commercial buildings, individual dwellings, increase in automobiles and hydro-power projects create the activities in mechanical sector. After the state re-structuring and political stability, all these sectors are expected to grow faster creating additional employment opportunities in the mechanical sector too. Majority of the workers engaged in the sector are either unskilled or with very insignificant technical skills that has created negative impact on the productivity of the sector. Corridor potential mapping and assessment report states that 9262 manufacture related micro, cottage and small industries are registered within the project districts. There are some specific peculiar products in different districts like Khukuri in Bhojpur and Karuwa in both Bhojpur and Sankhuwasabha district. Pertinent issue and challenges faced by the sector are unavailability of skilled workers and difficulty to retain them.

During the course of the study, it is estimated that more than 17000 additional skilled workers are required in the mechanical sector in the project implementing districts to fulfil the skilled work force need. Mostly demanded occupations are metal product producers (like Khukuri, Karuwa etc), aluminium fabricators, arc welders, gas welders, A/C refrigerator technician, steel furniture maker, sheet metal worker, Lathe Machine operator, City Rickshaw repairer, Machine operator. Considering the nature of the job in the sector, Apprenticeship modality of training is effective to address the actual market needs in training delivery and recommended to adopt this modality in training.

Electrical sector is growing faster and has a good future as there are number of on-going hydropower projects and many are in pipeline. Percentage of population having access to electricity is in increasing trend and up to the year 2016/17 has reached to 74 percent. The household electricity consumption 1342.67 GWh in the year 2011/12 has reached to 1792.95 GWh in 2015/16 indicating greater electrification in the recent time thereby generating more

employment opportunities in the sector. Expansion on electrical transmission line is on-going to the remote villages requiring additional workforce in the sector. Urbanization process is rapidly growing demanding additional skilled workforce in the sector. Rapid house construction is on-going in the earthquake affected districts of the project area.

It is estimated during the course of this study that more than 4000 additional skilled workers are required in the electrical sector in different districts of the project area. High demanding occupations in the sector are Building Electrician, Industrial Electrician, Electrical Appliance Repairers and Cable Network Technician.

Communication and Information Technology sector is such a sector where technology is changing rapidly requiring versatile skilled workers. It is hard to find the compiled database regarding the employment opportunity and the need of skilled workforce in Communication and Information Technology (IT) sector. Economic Survey 2016/17 mentions that land line phone users and the mobile phone users have reached 860,583 and 32,826,389 respectively. The number of internet service users has reached 15,388,760. This indicates the sector as highly potential sector for employment opportunities. Though the estimation is difficult, user of the electronics products are ever increasing and it can be safely anticipated that there is high potential of employment in repairing and maintenance of mobile phone, land line telephone, laptop, computer and other electronics products.

During the course of the study, it is estimated that around 2700 additional skilled workers are required in the Information and Communication Sector in the project districts in order to fulfil the skilled work force need of the sector. Major occupations identified as highly potential for employment opportunities within the project districts are Computer Hardware Technician, Mobile Phone Repairer Technician, FM technician, Telecom technician, Lap top Repairing Technician.

Automobiles are the major means of transportation especially in Nepal for the products and goods from the plain region to the hilly and mountainous regions and vice versa. Vehicle has become one of the basic necessities for Nepalese society today. Automobile registration in the country has exceeded 2.5 million and is still growing. According to the data of Department of Transport Management (DoTM), 211,969 units of new vehicles were registered in the country in the first half of fiscal year 2016/17 only. Registration under all segments of vehicles like bus, micro bus, car/jeep/van, motorcycle among others has grown impressively in recent years. Even in an ordinary automobile workshop, it is estimated that four persons including a head mechanic, one semi-skilled mechanic and at least 2 helpers work together. Automotive repair and servicing, Auto Transmission, Car washing, Auto Body, Motor cycles repair and servicing are the major area for employment opportunities in the automobile sector.

During the course of this study, it is roughly estimated that more than 1800 skilled workers in the sector within the project districts can immediately be employed. Major identified potential occupations are Automobile Mechanics and Motor Cycle Service Mechanics. Considering the nature of the job in the sector like in mechanical sector, Apprenticeship modality of training is effective to address the actual market needs in training delivery and recommended to adopt the modality in the training delivery.

Tourism/hospitality Sector seems highly potential sector as Nepal is one of the major tourist destinations in the world due to its geo-social diversity, its unrivalled natural beauty, abundant bio-diversity, multi-ethnic, multilingual, multi religious and multi-cultural identities. Diversification and expansion of tourism sector have enhanced people's livelihoods and employment opportunities thereby raising their living standard. Tourist arrival trend has been almost double in 2016 as compared in 2006 and reached to 753002. Tourist arrival in 2016 has grown by 40 % as compared to previous year 2015. National Tourism Strategic Plan has targeted to make 2,522,000 tourists visit and create 898 thousand employments by 2025. After constructing Madhya Pahadi Lokmarga, home stay management in different market location in target districts

has been one of the requirements for the travellers. This indicates highly potential employment opportunities in the sector. Further, the skilled workers turnover is found high in the sector requiring additional skilled workers.

CPMA report within the project districts have mentioned that there are 1149 micro to small registered enterprises related to the sector within the project districts. We can expect the political stability in coming days and large number of skilled workforce are likely to be in demand even though the sector has faced its worst time in the past due to transition phase of the country. Scarcity of skilled people, mismatch between the hospitality industry and training content, lack of honesty and working attitude of the workers are some of the challenges of the hospitality sector. Based on the information provided by stakeholders in course of this study, it is estimated that around 5800 additional skilled workers on different occupations are required in the tourism/hospitality sector. Major occupations identified during the study are Cook, Waiter/Waitress, Bakery, Food Processing Technician, House keeper, Sweets and Snacks Maker, Barista, Mixed Cook, Home Stay Assistant.

Considering the nature of the job in the sector, apprenticeship mode of training with at least one year of contract between apprentices and industry will be effective and recommended to implement in the training delivery wherever possible.

Textile/Garment sector: During the study, it was found that there are some district specific famous unique products like Radhi-Pakhi weaving in Okhaldhunga, Terhathum and Khotang; Dhaka weaving in Bhojpur, Dhankuta, Terhathum, Morang and Udayapur; Allo-processing and preparing textiles in Okhaldhunga, Udayapur, Bhojpur and Terhathum districts. Due to the lack of previous research on skilled workers in this sector, the projection of the work force is based on information gathered during the FGD and consultation with the entrepreneurs and concerned organization. Based on it, it is estimated that around 3000 additional skilled workers can potentially be employed in the sector within the project districts. Major occupations identified during the study are Dress Maker, Dhaka Weaver, Allo Processor, Garment Fabricator, Master Tailor and Boutique Maker.

Health sector is one of the largest sectors of employment. However, the focus of the study is on skilled workers like barber, beauty parlour technician, dental hygienist, dental assistant etc. It is hard to find the information regarding the availability and additional employment opportunities of the skilled workers like in these occupations. Due to this reason, this study is mainly based on the data/information collected during the FGD and interviews during consultation with the entrepreneurs and concerned organization. Based on this, around 1600 additional skilled workers can potentially be employed in the sector in the project implementing districts. Identified major occupations with potential employment opportunities are Barber, Beautician, Dental Hygienist, and Dental Assistant.

During the interviews and FGD, some occupations with reasonable employment opportunities were identified in addition to the sectors specified above. These are grouped as Miscellaneous in the report. Identified such occupations with good demand are: Shoe maker, bamboo based handicraft products, solar dryer technician etc. in the Morang district. Similarly, Micro-hydro technician and solar technician were found in demand in Khotang and Bhojpur district. Flex print machine operator were found in demand in Sunsari district.

As the study was carried out in limited time, it was able to identify the potential occupational sectors and key demanded occupations in each of the proposed districts. However, the team could not collect sufficient number of quantitative data from the field reaching to all the key informants due to time limits and the figure presented above may not represent the actual number of workforce required in each occupations. Because of this reasons, a Rapid Market Appraisal (RMA) is recommended before the delivery of training in each occupation to ascertain

district wise occupation and actual number of workforce required within the sector. District wise potential sectors and occupations are presented in a separate heading in the main report.

Following recommendations are made based on the above findings.

Potential occupations under each sector are recommended as indicated in sectoral findings above. Other General and apprenticeship related recommendations are:

- i. To carry out Rapid Market Appraisal (RMA) before the delivery of the training in each occupation to ascertain the actual need of the workforce.
- ii. Full apprenticeship mode of trainings is recommended in Automobile and Mechanical sector. This mode of training is recommended partially in Textile/Garment and Hospitality sector, shoe making sector based on feasibility.
- iii. Since industries in Nepal are very fragile due to political influences through trade-unions, strong government attention and support is required to enhance conducive environment.
- iv. Since industrialists were found frustrated from newly endorsed labour law of Nepal, Government of Nepal need to dialogue with industrialists to ensure for the growth of the industries
- v. Recommended to support interested skilled graduates for enterprise development
- vi. Recommended to establish and implement effective result based monitoring mechanism to ensure the quality of training.
- vii. Recommended to revise apprenticeship target to 6000 apprentices considering the capacity of industries to recruit apprentices in the industries.

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1. Chapter I: Introduction

1.1. Background

Nepal is a diverse country with 26.5 Million inhabitants of 126 castes/ethnic groups and speaking 123 different languages. The annual per capita income is 700 US\$, a figure which is fuelled by the inflowing remittances. According to the Living Standard survey of 2010/11, 56% of households receive remittances - both from domestic and international sources - an increase from 23% in 1995/96. Ministry of Finance has estimated that every year, around 512'000 youths enter the labour market (MoF, 2017)¹, 80% of which did not complete high school and remain mostly unskilled.

Traditionally, vocational training is perceived to lead to low graded profession in Nepal. People performing jobs related to technical skills were, and in many cases still are, mostly from Dalit and low/untouchable castes. However after restoration of democracy in 1990, when private sector investment is also allowed in TVET sub sector and also got support from International interventions of donors and NGO, as a result to some extent, there is change the perception of technical and vocational training and participation on skills training in increasing trend. Witness of s gradually increasing and yielding higher incomes for the skilled workers also paved the way to attract youths in skills training.

However, still out of more than five hundred thousand people coming to labour market, skills training offered by training providers are very negligible (nearly 10%). As a result, by now, more than four Million young (16 to 39 years old) Nepalese are working abroad, many of them as unskilled labourers. Remittances have become one of the foremost sources of income in Nepal, with nearly 56% of households receiving some sort of remittance (Nepal Demographic and Health Survey, Population Division of the Ministry of Health and Population, 2011).

In this background, SAMRIDDHI Project implemented by Ministry of Industry has been initiated with the funding support of International Fund for Agriculture Development (IFAD) aiming to ensure sustainable sources of income to poor households, migrant families and returnees in the Eastern and Central Regions of Nepal, by supporting the creation and expansion of family, micro, small and medium rural enterprises, both in the farming and off-farming sector. Out of the various components of the project, the Project has partnership with HELVETAS Swiss Intercooperation Nepal so as to implement short term vocational skills training and apprenticeship training on which Employment Fund Project of HELVETAS Nepal has proven experience. Thus, the proposed study aims to explore the market opportunities for the skills training graduates so as to ensure gainful and sustainable employment.

1.2. Rationale of the Study

On the one hand, there is a shortage of skilled human resource required for the labour market as mentioned in the background and on the other hand the skills graduates trained by the training providers are still unemployed. This is because of the mismatching of the skills delivered by the training institutes and skills required to the job market. Council for Technical Education and Vocation Training (CTEVT) is the apex body of TVET sector to develop curricula and for the accreditation of the training. the training institutes, In order to make any technical and vocational education and training (TVET) programs successful, it is necessary to design the TVET programs based on the needs of the labor market for which Sector Analysis and Rapid Market Appraisal (RMA) are proved to be effective technique to assess the needs of the market. Considering this fact in mind, Employment Fund Secretariat (EFS)/ HELVETAS Swiss Intercooperation Nepal since its establishment period has regularly been emphasizing to assess the needs of the market making RMA mandatory for its private sector Training and Employment Service Providers (T&Es) based on which technical proposals are prepared. Getting limitation of

¹ MOF 2017, Economic Survey 2016/17, Kathmandu: MoF.

RMA, in recent years, EF/HELVETAS Nepal has also practiced to conduct sector analysis to get overall potentials of labor market so as to help Training and Employment Service providers to recommend specific sectors in the specific market cluster/s. Based on the finding of Sector analysis, T&Es will be requested to conduct RMA on mostly demanded occupations so as to identify numerical and skills gaps on particular occupations and propose the training events while submitting the proposal.

There are basically two modes of training delivery; i. short term vocational skills training to be delivered by professional training institutes with composition of 20% practical and 80% theoretical contents and ii. Training to be provided on the industrial setting by the Private sector Industries themselves in their own premises / workshop so as to apply learning by doing approach of training delivery. SAMRIDDHI project has the target of providing training to 15000 youths in short term vocational training mode and 15000 youths through apprenticeship training mode. Thus, this survey has tried to explore existing capacity of market /industry so as to achieve the target since the training will be successful only after all the training graduates get employment.

1.3. Objectives of the Survey

The overall objective of Market Opportunity Survey is to identify the potential occupational sectors with mostly demanding occupations in the SAMRIDDHI implementing market clusters so as to ensure employment for the training graduates. However, specific objective of the study are as follows:

1. Identify potential occupational sectors including major market centers
2. Explore the specific potential occupations under each of sectors
3. Explore existing problems or constraints in each of the occupational sectors
4. Recommend the major occupational sectors and occupations to implement training for SAMRIDDHI project
5. Explore potential sectors for apprenticeship training

1.4. Scope of the Study

Basically the following occupational sectors were chosen for the purpose of market study considering the categories of labourers as demanded by Nepalese Labour market:

- a. Construction
- b. Agriculture
- c. Mechanical
- d. Electrical
- e. Communication and Information technology (cell phone, computer etc.)
- f. Automobile (4 wheelers, 6 wheelers and 2 wheelers)
- g. Tourism and Hospitality
- h. Textile (Garment and Tailoring)
- i. Health
- j. Miscellaneous

The analysis will comprise a mapping of the current situation of these sectors in terms of:

- analysis of the potential occupations in each sector/subsector
- potential of increased employability, diversifications of occupations
- Participation of private sector Industries in skill training delivery

1.5. Methodology

Methods and Tools of Data Collection

Both qualitative and quantitative data were collected from the field using Focused Group Discussion (FGD) and Semi Structure Interview (SSI) methods of data collection, for which FGD Guide and SSI Guide were developed. Besides the FGD and Semi Structure Interview,

observation notes of researchers and secondary data collected from different sources were also taken into consideration while deriving conclusion. Primary data from individual employers and newly elected local government authority was collected using semi structure interview guide whereas; data from employers' association was collected using FGD guide. Sample FGD and semi-structured interview outcome is presented in annex-4. Training providers' information was brought from secondary sources/data. Major Key informants consulted during the data collection in Agriculture sector were Districts of chambers of Commerce and Industries, local bodies of different districts, Agro-business promotion and market development directives, Agro-business promotion centres, Agro-tech and Research centres, Dairy and Food Industries, Fresh houses, Animal product based industries, Agro-based Industries etc. Likewise, in Tourism/Hospitality sector Hotel Associations, medium and large Hotels were consulted.

Similarly, Contractors Associations, Hume pipe and concrete industries, Chambers of Commerce and Industries, available Bricks manufacturing industries, Federation of cottage and Small Industries, Local bodies, District Coordination Committees, construction related Industries and factories, unemployed youths, furniture industries were some of the key informants consulted for construction sector. Respondents on electrical sectors were Local bodies, electrical shops and entrepreneurs, members of chamber of commerce and industries etc. In Electronics sector, Electronics business associations, local bodies, training centres were key informants. Main informants consulted for the data collection in Automobile sector were Automobile workshops, Vehicle dealers, Show rooms/Automobile traders, Automobile trade unions etc. Market opportunities in the Textile/Garment sectors were collected from Garment Industries, Spinning Mills, Jute mill industries, Dhaka Udhhyogs, Dhaka shops, Tailoring shops. Local bodies were main respondents in all sectors of economy. Detail list of the key informants consulted is presented in annex 3.

Geographical Coverage

This study also aims to explore the potential occupations and industries/ enterprises which are ready to work on apprenticeship mode of training. Thus, conducted sector analysis and also to explore market opportunities in SAMRIDDHI implementing 16 districts, this TOR has been prepared for hiring the independent consultants from the roster of consultants working previously with EF with similar nature of work. The consulting team will ensure that market opportunity survey has covered in the following four corridors ensuring the different markets opportunity in the following sixteen districts:

Province 1		Province 2		Province 3
Bhojpur	Terhathum	Mahottari	Saptari	Sindhuli
Morang	Sunsari	Dhanusha	Siraha	
Dhankuta	Okhaldhunga	Sarlahi	Rautahat	
Khotang	Udaypur	Bara		

Approaches of Data Collection

In order to collect data, sector wise key informants were identified before mobilizing the team using secondary data available with the project, based on which data collection tools were developed. After then data collection team was identified and orientation to the data collectors was given. Data collection was done in two phases; first phase, joining with corridor potential mapping and assessment of SAMRIDDHI Project Management Office. Second phase, after analysing the gap from the collected data from CPMA team. The following was the major approaches adopted for data collection.

1. During the first phase, EF /HELVETAS team also participated on the joint orientation workshop for Corridor Potential Mapping and Assessment from PMO and jointly planned and developed data and tools for both the survey and mapping. During the workshop on behalf of EF/HELVETAS Nepal, Team Leader of the project provided orientation on objectives and methods of Sector Analysis / Market Survey from HELVETAS Nepal. During the data collection, the focus of data collectors from HELVETAS was on to collect data required for sector analysis collecting data from CCIs and other employers.
2. Second phase of data collection was done after identification of gaps and need of additional data required for sector analysis from CPMA data and additional data was collected accordingly
3. Conducted market survey for sector analysis to identify major market opportunities in different market clusters and occupational sectors
4. Based on all the data collected, this report has been prepared

1.6. Limitation of the study

Original plan of EF/HELVETAS was that based on the secondary data available, some of the training events will be started at beginning and comprehensive Sector Analysis as labour market opportunity survey will be done by the end of 2018. However, plan was changed to complete the survey by the end of January 2018 after the first mission of RERP- SAMRIDDHI. So the project team had limited time and resources to complete the survey as it had originally planned. Thus, though the team is able to identify the potential occupational sectors and key demanded occupations in each of the proposed districts within the available time, the team was not able to collect sufficient number of quantitative data from the field reaching to all the key informants as planned. Because of this reasons, in order to forecast total number of trainees in each of the occupations detail RMA in each of districts is required to ascertain the number of trainees.. This study is mainly focused on short term vocational training and short term apprenticeship mode of training.

2. Chapter II Findings and Analysis

2.1. Background

There are limited researches and studies on the employment generation and workforce survey carried out in the Nepali context though there are sufficient number of literatures available in the international context. Unemployment, underemployment and poverty are the main challenges of Nepalese economy. Out of total population, 30 % are under employed and 2.3 are fully unemployed (NPC, 2073). Nepal Government has committed in the budget speech (2017/18) developing skilled and semi-skilled human workforce to develop them as high paid labour and to increase job opportunities. 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 to GDP, which has declined by 2.8 percentage in the last decade (MoF, 2012). Economic Survey carried out by MoF in 2017 estimates that around 512000 labour forces enter annually into the labour market. However, majority of them are not gainfully employed due to lack of appropriate skills. It is commonly heard that large numbers of industries in Terai region have been employing Indian technicians because of unavailability of particular type of skills in Nepalese workforce. Further, it was reported by the industrialists that Nepalese industries are very fragile and heavily influenced by the politics through trade unions. There is no any protection from the government so even the well run industries are found frustrated from the recently endorsed labour law of Nepal. Out of the 20 industries of different sectors visited to identify potentials for apprenticeship training only six of them (30%) of them were positive to work on apprenticeship mode of training. This entailed to carry out the sector analysis of different sectors in the SAMRIDDHI implementing 16 districts and prepare the required quality workforce. The sector analysis mainly covers Construction, Agriculture, Mechanical, Electrical, Automobile, Communication and Information technology, Tourism and Hospitality, Textile (Garment and Tailoring), Health and Miscellaneous sectors of economy. Findings of the study are presented as follows:

2.2. Sectoral Findings

Market trends and potentiality of the employment opportunities in the above mentioned sub/sectors of economy are briefly discussed in this section and presented as follows:

2.2.1. Construction Sector

Market Situation

Construction industry is one of the important sectors in any economy. Its contribution to the GDP and employment generation is very significant and plays important role in the development of infrastructure that is essential for the development of all other sectors. It can play a vital role to uplift the economic and socio status of local people by developing such infrastructures. Infrastructural development is critical to enable a country to achieve long term growth and sustainable poverty reduction. It has been playing an important role in enabling the poor to participate in the growth process. Even the access to education and health can be immensely improved through better road, railway, electricity, communications, water supply, and sanitation services.

Gross Value Addition (GVA) of the construction sector was estimated to grow by 11.66 % in the F/Y 2016/17 (MoF, 2017) compared to previous year. The survey estimated the share of construction sector to GDP to remain at 7.18 per cent in the fiscal year. Scarcity of workforce is prevailed in the market because of the attraction of foreign employment among youths. In national context, some infrastructure projects such as hydropower, irrigation, 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 need of skilled workforce in the sector.

A study carried out by SDC claims that there is big need of well-trained people in sectors such as Construction, tourism, mechanical, electrical, automobile, etc. (Pradhan et al., 2014²). The study has highlighted that the construction sector is one of the important sectors of economy, where more than one million people are engaged. After the re-structuring of the state into federal system, further boost in construction activities like construction of administrative centres in the federal capital and local bodies in local level can be anticipated. Likewise, construction of hydropower projects, irrigation facilities, water supply, establishment of new city centres, mid-hill highway etc. are expected to build for balanced development of Provinces.

Another study carried out by the Project management Office of SAMRIDDHI project on “Corridor potential mapping and Assessment Report, 2017” highlights that construction industries are suffering from the lack of skilled workforce (SAMRIDDHI, 2017). Identifying the gaps in the sector, the report also highlights the lacking of vocational training in the sector. It reflects that there are 642 micro to small construction industries in Koshi-Sagarmatha corridor and 1308 in Janakpur corridor totaling to 1950 construction industries generating employment to 18413 people. On top of this, there are large construction companies (Contractors firms) that generate additional employment. Most of the trained people, after getting some practical experience or even before that, go abroad for foreign employment (Pradhan. et al, 2014). This creates further skill workforce shortage to the Nepali construction industry. Due to the scarcity of the skilled workforce, most of the employees working in construction industries enter as labour and gradually upgrade as semi-skilled and then skilled workers through ‘learning-by-doing’ process. This reduces the productivity of the sector. The same study has exposed that the skill workers are in-migrating from India. This reveals the higher employment potential in the construction sector in Nepali job market. The employment opportunities generally are spread to the city and surrounding areas and in the construction sites of the project implementing districts.

Employment Opportunities

Based on the information collected by SAMRIDDHI/Helvetas team in course of this study, around 19237 additional skilled workers in the construction sector are required to fulfill the need of the existing growth rate in the construction sector. The information on the requirement of skilled workforce in the construction sector has been collected from SAMRIDDHI implementing districts and is presented in the annex 1. The data illustrates bigger employment opportunity in the construction sector in the Terai districts of province 1 and province 2. Furthermore, there seems a shortfall of the skilled workers in the construction sector even in the mid hill and hill districts though in comparatively smaller number. Among the skilled workforce required in the sector, bricklayer mason within the construction sector seems more demanded than others. Other employable occupations are Mason, Junior Plumber, Furniture Maker, Carpentry & Interior Decorator, Tile Marble Fixer, Gabion weaver, Scaffolder (Bamboo/Timber/Tubular), Building Painter etc. Consultation during the field visit revealed that construction of Madhya Pahadi Lokmarga, blacktopping of motorable road, expansion of existing urban and rural roads, rapid house construction in the earthquake affected districts in the project implementing areas, under construction cement industries, concrete brick industry in pipeline are some of the major reasons for the employment opportunities on construction sector. It was known that 22 rural roads with a length of 189.47 km are planned to construct in Terhathum district alone. Likewise, Annapurna Cement Industry is under construction with high production capacity in Sunsari district. The employment potentiality of construction sector was found spread in all project implementing districts.

² Pradhan, H., Ghimire, G.R., and Subedi, S. (2014). Report on analysis of selected industry and service sectors in Nepal. Lalitpur: Swiss Agency for Development Cooperation

Problems/Constraints

Construction sector has been facing some crucial problems. A recent study carried out by Employment Fund/Helvetas has highlighted that difficulties to find the skilled people, difficulties to retain them due to foreign employment, lack of coordination between the training and employment, mismatch of skills required by the sector and training acquired, lack of quality monitoring of the training, difficulties for female to continue the job after delivery, lack of professionalism and management skills of the entrepreneurs are major problems or constraints among others in the sector.

Solutions

Following could be the solutions to overcome the problems:

- i. It is natural that the people always seek better opportunity and therefore out migration of the workers will continue in future too. Therefore, there is a high need to continue producing additional human resources in the sector to full fill the market need and the gap created by the skilled workers migration.
- ii. The curricula should be reviewed and updated in a regular interval with the active involvement of employer's community to incorporate the changing technology and employers need. This helps to reduce the gap between the need of job market and trainings delivered. Employment linkage component in the training program will be effective.
- iii. More often it is heard that quality delivery of training is deficient in the training centres. Therefore, a strong mechanism for quality monitoring of the training delivery needs to be established.

2.2.2. Agriculture Sector

Market Situation

Agriculture has been considered the backbone of the economy and still remains the main sector of employment. Around 64 % of the population is engaged in agriculture occupation (CBS, 2011). The contribution of agriculture and forestry to GDP was estimated to remain at 28.89 per cent in the fiscal year 2016/17 (MoF, 2017). A labour market study carried out by CTEVT on "Analysis of Emerging needs of Technical Human Resources in the Country, 2016" mentions that there are 271 Agro Based Industries and 9217 Agro Based Cottage Industries operating their production and service activities which provide employment opportunities to 29,153 and 37,203 people respectively. As per the study report, out of the total workforce engaged in the industries, 47.27 % are generally required with technical background. The report states the average growth rate of agriculture sector remains around 3.5 % in the last decade. The lack of agriculture labour, technology and technicians are major hindering factors for the growth of the sector. This could be one of the factors for the decreasing rate of the contribution of agriculture sector in the GDP. The report projects additional annual demand of agriculture workforce (JTA-2,300; Gardener-1200; Poultry worker-2150; Fiber Processor-1100; Livestock Technician-1050; Veterinary JTA-1540: Seed technician-1240 etc.) in private formal sector all over the country.

There are 2218 micro, cottage and small Agro-based industries related to agro-forest-livestock in Koshi corridor and 4343 in Janakpur corridor totaling to 6561 agro-based industries generating employment to 17142 people within the project area (SAMRIDDHI, 2017). The mapping study has identified lack of skilled technical human resource as major gap among other gaps in agro-based enterprise. It highlights greater potential of green vegetable business (Cauliflower, Cabbage, Chilli, Tomato, Onion, Potato etc); Cash Crop (Sugarcane, Tea/Coffee); Spice Crops (Large Cardamom, Ginger, Turmeric); Citrus Fruits (Orange, Junar, Lemon); Summer Fruits

(Mango, Banana, Jackfruit, Pineapple, Lichi) in the project implementing districts. This necessitates the need of additional skilled workforce in the agriculture sector.

Employment Opportunities

Based on the information collected by SAMRIDDHI team in course of this study, more than 20000 additional skilled workers in the Agriculture Sector are required to fulfill the need of the skilled work force in the Agriculture Sector. The information on the requirement of skill workforce in the sector has been collected from the SAMRIDDHI implementing districts. The employment opportunities data collected in the Agriculture Sector is presented in Annex-1. The data illustrates larger employment opportunity in the Off Season vegetables production. There seems large shortfall of the skilled workers in the agriculture sector in the terai districts of project area.

Focused Group Discussion and interview during field consultation revealed that there are number of Hat bazaars in operation which help promoting the handicrafts, bamboo products, agriculture products like honey, forest products etc. Sunsari, Saptari Siraha, Mahottari, Sarlahi are regional market hubs and market centres. Khotang district was known as the pocket area of Cardamom. There are feed industries established in Morang and Udayapur district, packaging industries in Morang. These industries need additional technicians or skilled workers in the sector. There are Bamboo industries, ply industries, papad, and chips industries in the Sunsari district alone. These industries will consume additional skilled workers in the sector.

Similarly, there are many small and micro enterprises registered (1729 in Saptari, 2432 in Siraha, 3004 in Dhanusha, 1873 in Mahottari, 1964 in Sarlahi, 1556 in Rautahat, 2145 in Bara and 678 in Sindhuli) in the project districts. These help promotion of the agricultural products and are interlinked with the employment opportunities. Likewise, Sunsari, Siraha, Saptari, Dhanusha, Mahottari, Sarlahi are potential for fish farming. Most of the districts have developed and implementing agriculture prospective plan. The prospective plan has emphasized for the commercial farming system requiring additional technicians. Mostly, terai districts are more fertile area and have initiated diversified and commercial farming system. This clearly indicates the growth and employment opportunity in the agriculture sector.

Problems/Constraints

In spite of having big potentials of agriculture sector with having more than 60% of people involved in sector, contribution on GDP is comparatively less. This is because neither people has access of technology to improve productivity nor there is growth of agro-food industries in the country. Youths in the community are attracted to foreign employment rather than engaging agriculture occupation. Though Government of Nepal has brought up different agriculture perspective plan for commercialization of farming, it has not been implemented effectively. One product one village concept initiated by the government with the support of donor agencies has also not been effectively implemented as it had expected. Changing mind set of commercialization of agro farming is the present challenge of development actors. Lack of skilled human resource for commercial farming and technicians to support the farmers is also another burning issues in the sector

Recommended Solutions

The following are the major recommendation to reduce the problems indicated above:

- I. Establish and support to establish agro food industries in different parts of the country
- II. Provide subsidies for the industrialists involving in agro-food industries
- III. Plan to support all the actors of the value chain; from producers to the processors and distributors
- IV. Provide skills on commercial farming and livestock management
- V. Support for establishing market and credit linkage for sustainable farming

2.2.3. Mechanical Sector

Market Trend

Mechanical engineering is closely related to industrial manufacturing, infrastructure development and private property construction. Construction Industries, automobiles and the mechanical sectors are inter-linked and others two directly enhance the activities in mechanical sector as well. Development of railways, commercial buildings, individual dwellings, increase in automobiles and hydro-power projects create the activities in mechanical sector. Activities in the mechanical sector start from a small workshop to large engineering manufacturing companies. However, there is lack of consolidated database regarding the annual growth and employment opportunities in the sector. A study report conducted by SDC on “analysis of selected industry and service sectors in Nepal” reveals that the sector is facing high scarcity of skilled workers in the sector (Pradhan et. al, 2014). The study mentions that the employers hire workers as unskilled labourer and in due course of time, they gradually move towards semi-skilled workers. The study reveals that there are more than 9000 small and medium sized workshops spread in 47 districts of Nepal are associated in Federation of Grill and Still Entrepreneurs (FGSE) and more than 150000 workers are engaged in their member enterprise only. Majority of the workers engaged are either unskilled or with very insignificant technical skills. Obviously, there will be negative impact on the productivity of the sector due to the scarcity of skilled workers.

Another study carried out by CTEVT on “Analysis of Emerging Needs of Technical Human Resources in the Country” has forecasted additional annual demand of workers in the sector. The report says that there is annual demand of 5200 Mechanics, 1400 Machine operators, 3350 Millers, 4000 Metal sculpture, 2200 welders etc.

Mechanical sector is somehow related to industrial development and the development of industrial sector generates employment opportunities in Mechanical sector. The economic survey carried out by MoF for the F/Y 2016/17 expected the contribution of the industrial sector to the GDP for 2016/17 to remain 5.67 %. Its contribution stood at 6.35 percent in FY 2012/13 where as it decreased to 5.72 percent in FY 2015/16. This was due to the impacts of earthquake and boarder obstruction at that period. After the state re-structuring and political stability, it is expected to grow faster creating additional employment opportunities in the sector.

Based on the study carried out by the Project management Office of SAMRIDDHI project on “Corridor potential mapping and Assessment Report, 2017”, it has revealed that there are 6281 Manufacture related micro, cottage and small industries in the Koshi-Sagarmatha corridor and 2981 in the Janakpur corridor creating employment totalling to 17817 people in the sector. The study also highlights the scarcity of the skilled workers in the sector. This indicates the high employment potential and need of additional training to the people in the sector.

Employment opportunities

SAMRIDDHI/Helvetas team of exports has also collected the data regarding the existing skilled workers and need of the additional workers in the project implementing districts in course of this study. Morang is considered as the industrial capital of Nepal and there are many industries and factories. There are new industries in pipeline like Plywood industries, cement industry, PVC pipe industry, Iron rod industries etc. Housing construction is increasing rapidly demanding still and aluminium fabricators. Bhojpur and Sankhuwasabha are famous in preparing “Karuwa”. Bhojpur was famous for producing Khukuries and these enterprises are facing scarcity of the skilled workers. These manufacturing enterprises can absorb additional skilled workers in the sector. The data collected during the focused group discussion and consultation shows that more than 17770 additional skilled workers are required in the mechanical sector in the project implementing districts to fulfil the skilled work force. Potential employment opportunities in the Mechanical Sector within the project districts based on the data collected are presented in annex 1. The data illustrates larger employment opportunity in the Metal Product Maker (Khukuri,

Karuwa, Batuka), Aluminium Fabricators, Arc welder, Gas welder, Steel Furniture Maker, Lathe Setter Operator, Machine Operator (Milling M/C Setter Operator), City Rickshaw Repair, Mineral water /Plastic Factory Machine Operator etc. However, to ascertain the need of the workforce in each occupation, Rapid Market Appraisal (RMA) is suggested carrying out before the delivery of the training in each occupation.

Problems/Constraints

Mechanical sector is also not free from constraints and challenges. Major constraints and challenges faced by the sector are unavailability of skilled workers and difficulty to retain, mismatch between industry need and training content, lack of experience on the real world of work, still not perceived as decent job, lack of punctuality and working attitude of the employee, lack of coordination among the training provider and employers, Outmigration of labour, low female participation, difficult for the trainees to stay for longer duration training, lack of technologies/investment in the sector.

Recommended solutions

Following are the suggested solutions to overcome the problems:

- I. Emphasis should be given on apprenticeship mode of training in the occupations under mechanical sector so that the actual market needs are addressed in skill delivery. During the training period, the trainees become familiarized with the real world of work and also the base for the employment after graduation is prepared. They can be absorbed by the same company.

2.2.4. Electrical Sector

Market Trend

The electricity consumption has been increased from 397.28 Tons of Equivalent Oil (ToE) in 2014/15 to 436.66 in 2015/16. The consumption pattern has shown increment in the year 2016/17 (MoF, 2017). Percentage of population having access to electricity up to the year 2016/17 has reached to 74 and will further increase. This also indicates the creation of additional employment opportunity in the sector. According to the economic survey conducted by MoF, the contribution of Electricity, gas and water group to GDP that stood at 1.02 in the F/Y 2015/16 and estimated to reach 1.16 percent in 2016/17 with 0.14 percent point growth. Household electricity consumption in the year 2011/12 was 1342.67 GWh and has reached to 1792.95 GWh in 2015/16. This increasing rate of demand indicates greater electrification in the coming days thereby generating more employment opportunities in the sector.

The study carried out by CTEVT on “Analysis of Emerging Needs of Technical Human Resources in the Country” has indicated additional annual demand of workers in the electrical sector. The study speculates additional annual demand of 3100 Electricians each year. Likewise, the study report conducted by SDC on “analysis of selected industry and service sectors in Nepal” estimates 25,000 skilled workforce demand in this sector as of 2014 and anticipates to grow by, at least 20%, annually.

A subsector analysis report carried out by SEIS Project in 2012 in the four districts of Bara, Parsa, Sarlahi, and Rautahat district has revealed that there was noteworthy demand of skilled workforce in the Electrical sector. The report mentions a demand 3435 skilled workforce in three occupations (Electric Motor Rewinding, Electric House wiring and Industrial/Three Phase wiring), with higher demand in Electric House Wiring (SEIS Project, 2012).

Employment opportunities

The data collected by SAMRIDDHI/Helvetas team of experts in the project implementing districts shows 4130 additional skilled workers are required in the electrical sector. There is rapid house construction on-going in the earthquake affected districts of the project area. This demands additional skilled workers in the sector. It was shared during the Focused Group Discussion that skilled workers lacking and difficult to find even a wider when there arises a small problem related to wiring in individual dwellings. Expansion on electrical transmission line is on-going to the remote villages requiring additional workforce in the sector. Urbanization process is rapidly growing in the project implementing districts that demands additional skilled workforce in the sector. Many Industries and factories are in pipe line and demand additional skilled workers in the 3 phase industrial wiring. Based on the data collected, potential employment opportunities in the Electrical Sector are presented in the annex 1. The data illustrates larger employment opportunity in the Building Electrician, Industrial Electrician, Electrical Appliances Repairer, Cable Network Technician, (Cable Jointer), Transmission Line (Transformer Repair Technician).

2.2.5. Communication and Information Technology

Market Trend

It is hard to find the compiled database or information regarding the employment opportunity and the need of skilled workforce in Communication and Information Technology (IT) sector. Economic Survey 2016/17 mentions that land line phone users and the mobile phone users have reached 860,583 and 32,826,389 respectively. Mobile phone facility has been available in all 75 districts. Total number of distributed telephone has reached 34,534,280. Likewise, the number of internet service users has reached 15,388,760 with its density of 58.08 percent (MoF, 2017). This indicates high employment opportunity in the mobile phone repairing technicians, the opportunities spread in all population centres in all districts. Estimation of the users of laptop is difficult as there is no system of registration. However, it can be safely anticipated that there is high potential of employment in repairing and maintenance of mobile phone, land line telephone, laptop and computer.

A study carried out by SDC mentions that “Nepal Government, through its' long-term policy on Information and Communication introduced in 2003, has emphasized starting and expansion of telecommunication services, enhancing quality of services and encouraging use of modern technology to diversify and upgrade standards . The report also states that the policy has pointed out use of telecommunication services to provide support for the development of sectors such as agriculture, tourism, health, industry, commerce, postal service, information technology. It has anticipated using internet services for activities like tele-medicine, distance learning, tele-processing and e-commerce. In order to facilitate implementation of the policy, basic computer course is included in school level curricula to provide basic computer knowledge to every school children. Likewise, users of internet application and mobile phone are rapidly increasing. Similarly, users of computers are also rapidly and consistently increasing” (Pradhan, et. al).

Corridor potential mapping and Assessment Report, 2017 carried out by Project management Office of SAMRIDDHI project indicates that there are 262 IT related micro and small industries employing 283 persons only in Janakpur corridor of the Project. It is likely that there are such enterprises in the Koshi-Sagarmatha corridor as well. This also indicates the potentiality of the employment opportunities and additional training need. Based on the data collected, potential employment opportunities in the Communication and IT Sector are presented in the annex 1.

Employment Opportunities

The data collected by SAMRIDDHI/Helvetas team of experts in the project implementing districts reflects that 2715 additional skilled workers are required in the Information and Communication Sector in order to fulfil the skilled work force need of the sector. Rapid development in communication technology has created the employment opportunities in sector. Expansion of mobile phone in each and every village has created employment opportunity of mobile phone repairer and this is in further increasing trend. Computer based teaching learning methodology is reaching even in remote schools. This further demands the hardware technicians and in some cases software programmers as well. Major occupations identified during the study are Computer Programmer, Junior Computer Hardware Technician, Cell/Mobile Phone Repair Technician, FM Radio Technical Assistant, Telecom Lineman etc. The occupation wise details identified during the study in the project implementing districts are presented in annex-5. The data illustrates significant employment opportunities in the Information and communication Technology sector. However, due to limited time of the study, the figure may not represent the need of actual number of workforce required in the sector. Therefore, a Rapid Market Appraisal (RMA) is suggested carrying out before the delivery of the training in each occupation to ascertain the district wise occupation and actual number of workforce required within the sector.

2.2.6. Automobile Sector (2 wheelers, 4 wheelers and 6 wheelers)

Market Trend

Transportation has always played an important role in the economic and social development everywhere. Specifically in Nepal, automobiles are the major means of transportation for the products and goods from the plain region to the hilly and mountainous regions and vice versa. Vehicle has become one of the basic necessities for Nepalese society today. Automobile registration in the country has exceeded 2.5 million and is still growing. According to the data of Department of Transport Management (DoTM), 211,969 units of new vehicles were registered in the country in the first half of fiscal year 2016/17 only. With these new registrations, as per the Government Statistics, the number of vehicles registered in the country has reached 2,551,138 units³. The same source mentions that over one million new vehicles were registered in the country within the last four-and-a-half years alone. Ten years ago, in fiscal 2006-07, there were only 626,174 vehicles registered in Nepal. This shows that the trend of purchasing vehicles in the country has been increasing significantly. Referring to the government data, it mentions that there has been impressive growth in registration under all segments of vehicles like bus, micro bus, car/jeep/van, motorcycle, among others, in recent years.

As Nepal does not have major means of mass transportation and the existing public transportation system is unreliable, motorcycles have become the best means of mobility in the country. Motorcycle registration has overtaken the registration of other vehicles, with nearly two million (1,998,283) motorcycles registered in the country till the first six months of the fiscal year 2016/17 alone. In the first half of the fiscal year alone, 208,454 new motorcycles were registered at different government offices.

The study carried out by SDC on 2014 has indicated that around 200,000 numbers of people are engaged in the automobile sub/sector and around 40,000 people can be immediately absorbed by the market (Pradhan et al., 2014). It has indicated that even in an ordinary automobile workshop, four persons including a head mechanic, one semi-skilled mechanic and at least 2 helpers work together. As indicated in the report, regarding the rough proportion of number of vehicles and the required skilled persons for repair maintenance, it has estimated that 600

³ <https://thehimalayantimes.com/business/vehicle-registration-exceeds-2-5-million/> (retrieved on 24/01/2018)

motorbikes create jobs for 10 persons and 500 new vehicles generate 50 new jobs in different occupations. Based on these figures, the study has pointed out the immense demand for two wheeler and four wheeler mechanics. Following table presents the employment in Automobile sector.

Employment Opportunities in Automobile sector

Automotive Repair and Servicing	These franchises offer a wide variety of services that handles the repair and maintenance of both the outside and inside of the vehicles.
Auto Accessories	Auto accessories are helping owners improve the look and style of their vehicles. As spending for maintaining cars increase, the auto accessories franchises directly benefit from this trend.
Auto Transmission	Auto transmission checks and services are important to prevent cars from overheating and burning out its transmissions. There are different levels of protection these franchises can provide depending on the owner's personal preference.
Car Washer	Car washer are becoming popular as people hold their cars longer and want to maintain their cars in good a condition. These services may include full-service, exterior, or stationary automatic car washes.
Auto Body	Auto body, paint, and glass repairs are necessary to mend damages from car collisions and any wear and tear on the surface of the vehicle.
Motorcycles	Motorcycles are a different beast than regular cars and require more specialized services which provide opportunities for people who understand the specific needs of motorcycles and want to show their knowledge of them.

Source: Study on sector assessment of automobile market, Helvetas

Employment Opportunities

Looking at the increasing trend of vehicles, motor bikes and increased road access, it can be anticipated that there is ample opportunity of employment of skilled work force in the Automobile sub/sector. Further, there is high potential for self-employment to those who want to establish workshop for repair and maintenance.

A study carried out by SAMRIDDHI/Helvetas team of exports in the project implementing districts has indicated that 1805 additional skilled workers on different occupations are required in the Automobile sector in SAMRIDDHI implementing districts. Road network is rapidly expanding and it was known during the consultation that vehicle repairer are always found overloaded and vehicle owner needs to wait long for repairing his vehicle. Major occupations identified during the study are Heavy Vehicle Mechanics, Light Vehicle Mechanic, Motorcycle Mechanic, Motorcycle Service Mechanics etc. The occupation wise details identified during the study in the project implementing districts are presented in annex-2. This indicates ample employment opportunities in the Automobile Sector. However, the figure may not represent the need of actual number of workforce required in each occupation as the study was carried out within limited time and also the need varies with time. Therefore, a Rapid Market Appraisal (RMA) is suggested to carry out before the delivery of the training in each occupation to ascertain the district wise occupation and actual number of workforce required within the sector.

Problems/Constraints

Some of constraints and challenges faced by the Automobile sector are unavailability of skilled workers, mismatch between the market need and training content, lack of experience on the real world of work, lack of coordination among the training provider and employers, low female participation etc.

Recommended solutions

Following are some of the suggested solutions to overcome the problems and challenges:

- I. The training should be conducted in apprenticeship modality like in mechanical sector. During the training period, the trainees become familiarized with the real world of work and also the base for the employment after graduation is prepared. They can also be absorbed by the same workshop.
- II. A strong mechanism for quality monitoring of the training delivery with the involvement of the employer needs to be established.
- III. After receiving basic automobile training of 3 months, the content should be categorized in to sub-sector such as Indoor sales, Reception, Store keeper, Denting painting, Servicing, mechanic etc., as per participate interest, for better job guarantee

2.2.7. Tourism/Hospitality Sector

Market Trend

Nepal is one of the major tourist destinations in the world due to its geo-social diversity, its unrivalled natural beauty, abundant bio-diversity, multi-ethnic, multilingual, multi religious, and multi-cultural identities. Tourism has been one of the important sectors in service industry for economic growth from the perspective of comparative and competitive advantages. Diversification and expansion of tourism sector have enhanced people's livelihoods and employment opportunities thereby raising their living standard. Economy survey 2017 conducted by Ministry of Finance (MoF) for the fiscal year 2016/17 has estimated that the contribution of hotel and restaurant sector on GDP to remain at 1.98 percent at the end of the fiscal year 2016/17.

Looking at the tourist arrival trend, it is found that the tourist arrival (383926) on 2006 has almost doubled and reached to 753002 in 2016 (MoF, 2017). Tourist arrival in 2016 has grown by 40 % as compared to previous year 2015. National Tourism Strategic Plan has targeted to make 2,522,000 tourists visit and create 898 thousand employments by 2025.

As claimed by the Study on analysis of selected industry and service sectors in Nepal carried out by SDC, a big single hotel like Sheraton generates around 1000 new posts. Numbers of such big hotel are under construction in the eastern part which would generate additional employment opportunities. This study also reveals that there are more than 61,000 hotels registered in the small and medium sized hotel professionals association as claimed by the association. These can absorb significant number of skilled workers due to the high turnover of such skilled workforce and business growth. Likewise, the study conducted by CTEVT on "Analysis of Emerging Needs of Technical Human Resources in the Country" has indicated Waiter, Cook, Housekeeper, Field Tourist Guide, Thanka Painter, Receptionists as the highly demanded occupations in the hospitality sector.

Corridor Potential Mapping and Assessment report within the project districts has mentioned that there are 1149 micro to small enterprises registered in the sector creating employment to 2743 persons. Although hospitality sector has faced its worst time due to political instability of the country in the past, large number of skilled workforce are likely to be in demand as the transition has been towards the end and political stability is expected. It is found during the interaction with the employer entrepreneurs that they give more priority to experienced workers than recently trained workers as these are more likely to leave after gaining the experience. Once the employees are trained and experienced, they prefer to go abroad for employment.

Employment Opportunities

In course of this study, SAMRIDDHI/Helvetas team of experts collected data on the skilled workforce requirement from the project implementing districts in the this sector. During the consultation, it was shared that eight to ten thousands tourist visit Khotang district alone in tourist destination places like Halesi. There are 3 airports in Khotang alone which provide easy access to reach there. Khotang and Okhaldhunga are on the way to Solukhumbu and tourists travel through the route. Likewise, Terhathum, Dhankuta, Chhinnamasta of Saptari, Gadhimai of Bara districts are other tourist destination locations. This promotes the hospitality industry creating addition jobs in the area. Big hotels under construction in Biratnagar, Jhapa, Dhankuta can absorb additional skilled workers in the sector. There is large number of small hotels, lodges and Home stays. Data has indicated that around 6000 additional skilled workers on different occupations are required in the tourism/hospitality sector. Major occupations identified during the study are Chinese Cook, Indian Cook, Continental Cook, Waiter, Assistant Waiter, Bakery, Small Hotel & Lodge Assistant, Housekeeping/Cleaner, Sweets & Snacks Maker, Barista (Coffee Maker) etc. The occupation wise details identified during the study in the project implementing districts are presented in annex-2. This indicates ample employment opportunities in the Hospitality/Tourism Sector. However, the figure may not represent the need of actual number of workforce required in each occupation due to study carried out within limited time. Therefore, a Rapid Market Appraisal (RMA) is suggested to carry out before the delivery of the training in each occupation to ascertain the district wise occupation and actual number of workforce required within the sector.

Problems/Constraints

Some of constraints and challenges faced by Tourism/Hospitality sector are difficulties to find skilled people in hospitality sector, mismatch between the hospitality industry and training content, lack of honesty and working attitude, frequent turnover of the staff, occupational safety and health etc. Employers provide the food and lodge facilities to the employees so it was found that wages provided by the hotel industries is not equivalent to minimum wages to the government of Nepal. However, during the FGD conducted with the member of Hotel Association Nepal, it was found the if the project can ensure at least one year of contract for apprenticeship mode of training, hotel industry is ready to ensure minimum wages fixed by the government. After constructing Madhya Pahadi Lokmarga, home stay management in different market location in target districts has been one of the requirements for the travellers.

Recommended solutions

Following are some of the suggested solutions to overcome the problems or challenges:

- I. Apprenticeship mode of training with at least one year of contract between apprentices and industry based on feasibility is recommended to overcome problems ensuring minimum wages as per Government rules.
- II. Employers orientation to ensure minimum wages is required
- III. A strong mechanism for quality monitoring of the training delivery with the involvement of the employer needs to be established.
- IV. Conduct home stay management training in different identified market centres

2.2.8. Textile/Garment Sector

Market Trend and employment opportunities

Very limited research has been carried out on the Textile/Garment sub/Sector and it is hard to find the available information on the existing skilled workforce and additional workforce. Due to this reason, the projection of the work force is fully dependent on the information provided during the Focus Group Discussion and information received during consultation with the entrepreneurs and concerned organization. SAMRIDDHI/Helvetas team of experts collected the information during the field consultation and interviews. Based on the information gathered by the team of experts, around 3000 additional skilled workers can potentially be employed. It was known that Radhi-Pakhi weaving enterprise is famous in Okhaldhunga, Terhathum and Khotang. Likewise, Dhaka weaving in Bhojpur, Dhankuta, Terhathum, Morang and Udayapur districts. Allo-processing and preparing textiles from Allo are found potential in Okhaldhunga, Udayapur, Bhojpur and Terhathum districts. There are Garments industries in Morang. These indicate employment opportunities within the project district in Textile/Garment sub sector. Major occupations identified during the study are Dress Maker, Dhaka Weaver, Hand Embroiderer, Tailor, Garment Fabricator etc. The occupation wise details identified during the study in the project implementing districts are presented in annex-2. However, a Rapid Market Appraisal (RMA) is suggested to carry out before the delivery of the training in each occupation to ascertain the district wise occupation and actual number of workforce required within the sector.

2.2.9. Health

Market Trend and employment opportunities

Economic survey 2017 mentions that there exist total 90909 human resources in the health sector. Of these 52000 are the women health volunteer workers. However, the focus of the study is not for the long term courses on health sector, rather the focus is on skilled workers like barber, beauty parlour technician, dental hygienist, dental assistant etc. it is hard to find the information regarding the availability and additional employment opportunities of the skilled workers like in these occupation.

Due to this reason, the study of health sector is mainly based on the data/information collected by SAMRIDDHI/Helvetas experts team during the Focus Group Discussion, information received during consultation with the entrepreneurs and concerned organization. Based on the information gathered by the team of experts from project implementing districts, around 1600 additional skilled workers can potentially be employed in the sector. Major occupations identified during the study are Barber, Assistant Beautician, Beautician, Assistant Dental Lab Technician etc. The occupation wise details identified during the study in the project implementing districts are presented in annex-2. However, a Rapid Market Appraisal (RMA) is suggested to carry out before the delivery of the training in each occupation to ascertain the district wise occupation and actual number of workforce required within the sector.

2.2.10. 2.2. 10 Miscellaneous

During the interview and Focus Group Discussion carried out by the team of experts deployed by SAMRIDDHI/ Helvetas, some reasonable employment opportunities were identified in addition to the sectors specified above. It was found that there was good demand of shoe maker, bamboo based handicraft products, solar dryer technician etc. in the Morang district. Similarly, Micro-hydro technician and solar technician were found in demand in Khotang and Bhojpur district. Flex print machine operator were found in demand in Sunsari. Likewise, Khukuri and Karuwa were found the traditional famous products in Bhojpur and Sankhuwasabha district. However, these products are in a dwindling trend due to the lack of the skilled workers in these occupations. Therefore, Crafts person for the preparation of Khukuri and Karuwa would help to continue these

products and reasonable number can be absorbed by these entrepreneurs. The occupation wise details identified during the study in the project implementing districts in such additional occupations are presented in annex-2. However, a Rapid Market Appraisal (RMA) is suggested to carry out before the delivery of the training in each occupation to ascertain the district wise occupation and actual number of workforce required within the sector.

2.3. District wise Potential sectors and Occupations

During the study, it was found that some of the occupations were found common in all project implementing districts. However, the rest of the sectors/occupations were not equally potential in all districts. If some sectors and occupations were found demanded in one districts, other were found more potential and demanded in other locations. Based on the data collected by the team, the district wise potential sectors, occupations, reason for potentiality of the occupations and major market centres in the district are presented in this section.

1. Khotang

Potential Areas	
Sector	Occupation
Tourism and Hospitality	Cook-baking, Waiter-Waitress, Small hotel & Lodge Management Assistant
Construction	Mason, Plumber, Furniture Maker, Construction Carpenter
Agriculture	Post-harvest Technician, Cardamom processor, Junior Technical Assistant (Poultry)
Communication and IT	Mobile Phone Repair Technician
Electricals	Building Electrician, Motor rewinder
Health	Assistant Beautician
Textile(Garment and Tailoring)	Tailoring, dress maker, hand embroidery
Mechanical	Arc welder, aluminium Fabricator

Under constructing Madhya Pahadi Lokmarga, Motorable road under progress for blacktop, earthquake affected district-rapid house construction are some of the reasons for employment opportunities in construction and electrical sector. Religious touristic destination with around ten thousand tourists visits per day, existing 3 airports for easy access help promoting the hospitality sector. It is known as the pocket area of Cardamom. Further, there are 12 Hat bazaar operating in a week which promotes marketing of agriculture products. Expansion of the transmission lines and towers also demand workers in the electrical sector. Special products of the districts are: Large in production of Cardamom, Ginger and Litchi are the special products of the district. Major Market centres of the district are Durchim, Diktel, Kharpa, Ainselukharka, Chhitapokhari, Shaunchaur, Chisapani, Khaotang Bazar, Mattim, Baksila.

2. Okhaldhunga

Potential Areas	
Sector	Occupation
Agriculture	Off seasonal vegetable farming, Junior Technical Assistant (Poultry)
Construction	Mason, Furniture Maker, Construction Carpenter, plumber, tile marble fitter, building painter
Textile	Radhipakhi weaver, Allo processor, tailoring, dress maker

Hospitality	Cook-baking, Waiter-Waitress, Tourist Guide, Small hotel & Lodge Assistant
Communication and IT	Mobile Phone Repair Technician
Electricals	Building Electrician
Computer	Computer Hardware Technician

Okhaldhunga is a major tourist route for Solukhumbu through Khotang. This enhances hospitality sector. Madhya Pahadi Lokmarg passing through the district, re-construction of housings damaged by earthquake has faced skilled workers in the construction and electrical sector. The district is potential for off-season vegetable production and 17 Hat Bazars operating in a week enhance marketing the agricultural products and help promoting the market of the textile products like Radhipakhi, Allo etc.

Okhaldhunga Bazar, Manebhanjyang, Kalikadevi, Mulkharka, Prapcha, Sherna, Khijifalate, Yesham are the major market centres of the district.

3. Morang

Potential Areas	
Sector	Occupation
Mechanical	AC, Refrigerator technician L1/ L2, Arc/Gas welding, Aluminium fabricator, Steel furniture Maker, Lethe machine operator, Machine operator
Construction	Scaffolding, Furniture maker, Brick Layer Mason, Tile marble fixer, Construction worker, Plumber, Building Painter
Communication and IT	Mobile Phone Repair Technician, Telecom lineman,
Health	Beautician, Assistant Beautician, Barber
Textile	Dhaka weaver, Garments, Tailoring, dress maker
Agriculture	VHAW, Off seasonal vegetables
Electrical	Building Electrician, Industrial Electrician, Electrical appliances repairer
Automobile	Light vehicle service mechanic, Junior Auto mechanic, Motor cycle service mechanic
Tourism and Hospitality	Cook, waiter/waitress, baker, Fast food cook, Receptionist cum Cashier
Other	Early Childhood Development Facilitator(Montessori), Security guard, Printing Technician

Being an Industrial capital of Nepal with highest numbers of industries and factories, the district is potential for mechanical/electronics sector. New Industries like Plywood Industry, 3 Cement Industries, Paper (Recycle) Industry, PVC Pipe Industry, Feed Industry, Packaging Industry, Iron Rod Industry, Himalayan concrete Industry, and Concrete Brick Industry are also in pipeline. These industries along with rapid urbanization create employment opportunities in the construction sector. There exist Garment factories and Dhaka weaving enterprises. Morang is a fertile district and potential for agricultural products. Major Market Centres of the district are Urlabari, Biratchowk, Belbari, Pathari, Rangeli, Sundar Haraicha, Miklajung, Letang, Jahada, Katahari, Budhiganga, and Biratnagar. These market centres help in promoting the agricultural and other products.

4. Udayapur

Potential Areas	
Sector	Occupation
Construction	Brick Layer Mason, Furniture Maker
Agriculture	Junior Technical Assistant (Diary, Poultry and Vegetable), Bee keeper, Dairy and sweets Technician
Automobile	Vehicle Mechanic, Motorcycle Mechanic
Mechanical	Arc welder, Structural Fabricator, Aluminium fabricator
Electrical	Building Electrician, Motor rewinding, Electrical Appliances Repairer
Health	Beautician and Barber
Handicraft	Bamboo products
Hospitality	Small hotel & lodge assistant (Home stay)
Textile/Garments	Dhaka weaver, Allo processor, Dress Maker

The district is potential for bee keeping, off-season vegetable farming, poultry farming. There are enterprises of Allo processing, Dhaka weaving that generate employment in the sub-sector. It was known that there are limited barbers and beauticians compared to population in the district. Automobile workshops are in distant and overloaded. There are plenty of bamboos and other required raw materials for bamboo products. Major Market Centres of the district are Gaighat, Murkurchi, Beltar, Katari, Jaljale, Nepaltar, Ghurmi, and Rampurthoksila which are being helpful for marketing of the agricultural and other products.

5. Bhojpur

Potential Areas	
Sector	Occupation
Agriculture	Junior Technical Assistant (Diary, Poultry and Vegetable), Bee keeper, Dairy and sweets Technician
Textile/Garments	Dhaka Weaver, Dress maker
Mechanical	Arc welder, Steel and stainless Fabricator
Construction	Plumber, Mason, Furniture Maker, Micro-Hydro technicians
Communication and IT	Mobile Phone Repair Technician
Automobile	Vehicle Mechanic, Motor cycle service mechanics
Tourism and Hospitality	Cook, Home stay, Waiter/Waitress
Electrical	Building Electrician, Solar Technician

Under constructing Madhya Pahadi Lokmarga, Urban and rural road expansion, rapid urbanization help employment for skilled workers in construction sector. Special products of Bhojpur are Karuwa, Khukuri and Dhaka. Road access has recently reached and it is difficult to find the vehicle mechanic easily in the district. Major Market Centres of the districts are Dingla, Champe, Balankha, Ghoretar, Bhojpur, Shadananda, Tyamkemaikum, Salpasilicho, Tingla, Taxsar, Chaukidada, Kulung, Pyauli Bazar, Charambi Bazaar which help to promote marketing of the products like Dhaka, Khukuri, Karuwa etc.

6. Terhathum

Potential Areas	
Sector	Occupation
Textile	Dhaka Weaver, Radhi-Pakhi
Agriculture	Junior Technical Assistant (Vegetable & NTFP)
Health	Beautician, assistant beautician
Handicraft	Bamboo products
Construction	Plumber, Brick Layer Mason, Gabion Weaving, Furniture maker, Construction Carpenter
Electrical	Building Electrician
Mechanical	Arc welder, Structural Fabricator, Aluminium fabricator

Under constructing Madhya Pahadi Lokmarga passes through the districts creating number of opportunities. Rapid urbanization, expansion of 22 rural roads (Planned length of 189.47) creates ample employment opportunities in the construction sector. Dhaka, Bamboo products, favourable environment for tea production create additional employment opportunities in agriculture sector. There are around 10 main market centres to enhance the promotion of these products.

7. Dhankuta

Potential Areas	
Sector	Occupation
Construction	Plumber, Mason, Furniture Maker, Micro-Hydro technicians
Mechanical	Arc welder, Structural Fabricator, Aluminium fabricator
Electrical	Building Electrician
Textile/Garments	Dhaka weaving, dress maker, tailoring, hand embroidery
Agriculture	Junior Technical Assistant (Vegetable & fruits)
Tourism and Hospitality	Cook, Home-stay, House keeper, Waiter/Waitress

Dhankuta is the regional head-quarter and demanding for the provincial capital of Province 1. This is one of the city centres of hilly districts and urbanization is rapid creating employment opportunities in construction and electrical sector. This is also pocket area for tea production and help employment generation for skilled workers in agriculture sector. Dhaka weaving is famous in this district. Major City Centres are Chhatrajorpati, Dhankuta, Khaslachhingtang, Saghurigadhi, Hile, Pakhribas, Sindhuwa, Bhedetar, Uttarpani, Dadabazaar, ChhaNumerBudhabare, Rajarani, Belhara-Kagate.

8. Sunsari

Potential Areas	
Sector	Occupation
Mechanical	AC, Refrigerator technician L1/ L2, Arc/Gas welding, Aluminium fabricator, Steel furniture Maker, Lethe machine operator, Machine operator
Construction	Scaffolding, Furniture maker, Brick Layer Mason, Tile marble fixer, Construction worker, Plumber, Building Painter
Communication	Mobile Phone Repair Technician, Telecom lineman,

and IT	
Health	Beautician, Assistant Beautician, Barber
Textile	Dhaka weaver, Garments, Tailoring, dress maker
Agriculture	VHAW, Off seasonal vegetables
Electrical	Building Electrician, Industrial Electrician, Electrical appliances repairer
Automobile	Light vehicle service mechanic, Junior Auto mechanic, Motor cycle service mechanic
Tourism and Hospitality	Cook, waiter/waitress, baker, Fast food cook, Receptionist cum Cashier
Other	Early Childhood Development Facilitator(Montessori), Security guard, Printing Technician

Itahari, a junction of the eastern cluster lies in this district. It is a growing market centre/Hub. There are 26 Hat Bazaars operating in a week which promote marketing the products. Industries in pipe line in the district are Annapurna Cement Industry, Nepal Bamboo Industry, Plywood Industry, Papad chips industry (4 in numbers), Arbinda Pvt. Ltd. This is a religious and tourist destination area. Therefore, there are ample employment opportunities in the sectors mentioned above. Major city centres are are Dharan, Barakhshetra, Itahari, Inaruwa, Bhokraha, Harinagara, Koshi, Dhuhabi, KhanarJhumka.

9. Saptari

Potential Areas	
Sector	Occupation
Agriculture	Community Agriculture Assistant, Agriculture Junior Technical Assistant, Off season vegetable producer, Dairy & Sweet Technician
Mechanical	AC, Refrigerator technician L1/ L2, Arc/Gas welding, Aluminium fabricator, Steel furniture Maker, Lethe machine operator, Machine operator
Construction	Scaffolding, Furniture maker, Brick Layer Mason, Tile marble fixer, Construction worker, Plumber, Building Painter
Health	Assistant Beautician
Communication and IT	Mobile phone repair technician
Electrical	Building electrician, IE
Hospitality	Cook, Assistant Waiter, Small Hotel & Lodge Assistant
Textile/Garment/Tailoring	Dress maker, Tailoring

There are 1729 Industry (Small & micro enterprise). Agriculture Perspective Plan (APP), has emphasized commercial farming system. The land is fertile and potential for diversified and commercialized farming system. Road and market infrastructure are more developed and it is a regional market hubs. Major market centres are Kalyanpur, Rupani, Rajbiraj, Kathauna, hanumannagar, Bhardaha. Special agriculture products are Pointed Gourd, Sugarcane, Mango, Bananas, Riverbed farming (Fresh vegetable & fruits).

10. Siraha

Potential Areas	
Sector	Occupation
Agriculture	Community Agriculture Assistant, Agriculture Junior Technical Assistant, Off season vegetable producer
Construction	Junior Plumber, Building Painter, Bricklayer/ Masson
Hospitality	Assistant waiter, Small Hotel & Lodge Assistant
Communication and IT	Mobile phone repair technician
Mechanical	AC, Refrigerator technician L1/ L2, Arc/Gas welding, Aluminium fabricator, Steel furniture Maker, Lethe machine operator, Machine operator
Electrical	Building Electrician, Industrial Electrician, Electrical appliances repairer
Health	Assistant Beautician,
Textile(Tailoring and garment)	Dress maker, tailoring

Siraha is rich in agricultural land. There are 2432 Industry (Small & micro enterprise) and number of industries are in pipeline. Agriculture Perspective Plan (APP) has emphasized for the commercial farming. Lahan of Siraha is regional market hubs and market centre. Therefore, employment potential in Agriculture, Construction and Hospitality sectors are high. Major market centres to promote the products are Mirchaiya, Choharwa, Lahan, Kalyanpur, Sukhipur, Bhagwanpur, Siraha-Madar. Pointed Gourd, Mango, Fish, Riverbed farming (Fresh vegetable & fruits) are special products of the district.

11. Dhanusha

Potential Areas	
Sector	Occupation
Mechanical	AC, Refrigerator technician L1/ L2, Arc/Gas welding, Aluminum fabricator, Steel furniture Maker, Lethe machine operator, Machine operator
Construction	Scaffolding, Furniture maker, Brick Layer Mason, Tile marble fixer, Construction worker, Plumber, Building Painter
Communication and IT	Mobile Phone Repair Technician, Telecom lineman,
Health	Beautician, Assistant Beautician, Barber
Textile	Dhaka weaver, Garments, Tailoring, dress maker
Agriculture	VHAW, Off seasonal vegetables
Electrical	Building Electrician, Industrial Electrician, Electrical appliances repairer
Automobile	Light vehicle service mechanic, Junior Auto mechanic, Motor cycle service mechanic
Tourism and Hospitality	Cook, waiter/waitress, baker, Fast food cook, Receptionist cum Cashier
Other	Early Childhood Development Facilitator(Montessori), Security guard, Printing Technician

Dhanusha is pocket area for Fish production. There are number of industries in pipeline. Registered 3004 Small & micro enterprise exist in the district. Agriculture Prospective Plan has

emphasized for commercial farming. All these create employment in the Agriculture sector. Rapid urbanization has created number of opportunities in the construction sector. Special products of the district are Fish, Mango and Riverbed farming (Fresh vegetable & fruits). Major market centres are Dhalkewar, Mahendranagar, Dhanushadham, Sabalila, Yadukuha, Janakpur, Nagarain.

12. Mahottari

Potential Areas	
Sector	Occupation
Agriculture	Community Agriculture Assistant, Agriculture Junior Technical Assistant
Construction	Scaffolding, Furniture maker, Brick Layer Mason, Tile marble fixer, Construction worker, Plumber, Building Painter
Electronics	Mobile phone repair technician
Electricals	Building electrician, Industrial Electrician, Electrical Appliances Repairer
Mechanical	Arc/Gas welding, Aluminium fabricator, Steel furniture Maker, Lethe machine operator, Machine operator
Automobile	Light vehicle service mechanic, Junior Auto mechanic, Motor cycle service mechanic
Health	Assistant beautician
Textile(tailoring & garment)	Tailoring, dress maker, hand embroidery

Mahottari is also a pocket area for fish production. There are 1873 small & micro enterprise registered which help in promoting the agriculture products. Number of industries is in pipeline. Being a regional market hubs and market centres, there is high potentiality of employment opportunities in the sectors indicated. Special Products of the district are Sugarcane, Onion, Tomato, Fish. Major Market centres are Bardibas, Gausahala, Ramgopalpur, Jaleswor, Matihani and Pipra.

13. Sarlahi

Potential Areas	
Sector	Occupation
Agriculture	Community Agriculture Assistant, Agriculture Junior Technical Assistant
Construction	Scaffolding, Furniture maker, Brick Layer Mason, Tile marble fixer, Construction worker, Plumber, Building Painter
Electronics	Mobile phone repair technician
Electricals	Building electrician, Industrial Electrician, Electrical Appliances Repairer
Mechanical	Arc/Gas welding, Aluminium fabricator, Steel furniture Maker, Lethe machine operator, Machine operator
Automobile	Light vehicle service mechanic, Junior Auto mechanic, Motor cycle service mechanic
Health	Assistant beautician
Textile(tailoring & garment)	Tailoring, dress maker, hand embroidery

Agriculture Perspective Plan (APP) has emphasized commercial farming. There are 1964 Small and micro enterprises registered. Numbers of Industries are in pipe line. The district is a potential pocket area for Fish production pocket area. This is the region for potential employment

opportunity in the agriculture sector. Special Products of the district are Pointed Gourd, Sugarcane, Tomato, Milk, Mango, Lichi, Fish, Riverbed farming (Fresh vegetable & fruits), Essential oil, Buff Meat (Frozen), Chicken meat. Major market centres are Hariwan, Barahathaba, Lalbandi, Malangawa, Bailbas.

14. Rautahat

Potential Areas	
Sector	Occupation
Agriculture	Community Agriculture Assistant, Agriculture Junior Technical Assistant, Livestock Junior Technician, Agriculture Junior Technical Assistant, Off season vegetable producer
Construction	Scaffolding, Furniture maker, Brick Layer Mason, Tile marble fixer, Construction worker, Plumber, Building Painter
Mechanical	Arc/Gas welding, Aluminium fabricator, Steel furniture Maker, Lethe machine operator, Machine operator
Automobile	Junior Auto mechanic, Motor cycle service mechanic
Electrical	Building Electrician, Electrical Appliances Repairer
Handicraft	Galaicha weaving, Boutique
Health	Assistant Beautician
Tourism and Hospitality	Cook, waiter/waitress, baker, Fast food cook, Receptionist cum Cashier

The district is a Fish production pocket area. There are 1556 small and micro enterprise registered in the district which help in promoting the district products. Many industries are in pipe line. Agriculture Perspective Plan (APP) has emphasized commercial agricultural farming. Main products of the district are Sugarcane, Tomato, Lichi, milk, Mango, Fish, Riverbed farming (Fresh vegetable & fruits). Chandrapur, Garuda, Katahairya, Gaur are main city centres of the district.

15. Bara

Potential Areas	
Sector	Occupation
Mechanical	AC, Refrigerator technician L1/ L2, Arc/Gas welding, Aluminium fabricator, Steel furniture Maker, Lethe machine operator, Machine operator
Construction	Scaffolding, Furniture maker, Brick Layer Mason, Tile marble fixer, Construction worker, Plumber, Building Painter
Communication and IT	Mobile Phone Repair Technician, Telecom lineman,
Health	Beautician, Assistant Beautician, Barber
Textile	Dhaka weaver, Garments, Tailoring, dress maker
Agriculture	VHAW, Off seasonal vegetables
Electrical	Building Electrician, Industrial Electrician, Electrical appliances repairer
Automobile	Light vehicle service mechanic, Junior Auto mechanic, Motor cycle service mechanic
Tourism and Hospitality	Cook, waiter/waitress, baker, Fast food cook, Receptionist cum Cashier
Other	Early Childhood Development Facilitator(Montessori), Security guard, Printing Technician
Handicraft	Galaicha Weaving

Bara is also a pocket area for fish production. This is a religious and tourist destination area that can promote hospitality sector. It is also a regional market hub and market centre. There are 2145 Small and micro enterprises registered which help promoting the district products. Main agricultural products are Sugarcane, Onion, Tomato, Banana, Fish, Essential oil, Riverbed farming (Fresh vegetable & fruits), Chicken meat & egg. Major City Centres in the district are Kaliya, Simraungadh, Jitpur-Simara, Nijgadh.

16. Sindhuli

Potential Areas	
Sector	Occupation
Construction	Plumber, Mason, Furniture Maker, Micro-Hydro technicians
Mechanical	Arc welder, Structural Fabricator, Aluminium fabricator
Electrical	Building Electrician
Textile/Garments	Dhaka weaving, dress maker, tailoring, hand embroidery
Agriculture	Junior Technical Assistant (Vegetable & fruits)
Tourism and Hospitality	Cook, House keeper, Waiter/Waitress, Small Hotel and Lodge Management
Health	Assistant Beautician

After the BP highway started, Sindhuli has grown as increasing potential market. Junar, Turmeric and Ginger are special agricultural products of the district. There is high potential in agricultural technicians/skilled workers due to the cash crops. Small and micro enterprises registered enterprises are 678 that are instrumental for promoting the products. Rapid urbanization has created potential for construction and electrical sectors. Major City Centres of the districts are Bhiman, Dakaha, Dudhauli, Chakmake, Sindhulimadhi, Kapilakot-chhap, Khaniyakharka, Khurkot, Jhangajholi, Ratamata.

3. Chapter III Recommendations

3.1. Recommendations

Based on findings of the review of documents, past studies and analysis of information/data collected by experts during the field consultation, following recommendations are drawn:

Potential Sectors with occupations

The following are the major occupations identified in each of the sectors. However, some of the other highly demanded occupations could also be identified in each of the sectors during Rapid Market Appraisal:

- I. Construction: Brick Layer mason, Plumber, Furniture maker, construction workers, scaffolders, Carpenters, Gabion Weavers, Tile and Marble Fitter, Building Painters
- II. Electrical: Building Electrician, Industrial Electrician, Electrical Appliance Repairers, Cable Network Technician
- III. Agriculture: Poultry Farming Technician, Off Season Vegetable Farmer, Dairy Technician, Junior Technical Assistance, Village and Animal Health Workers, Bee Keepers, Community Livestock Assistance, Food Processors,
- IV. Mechanical: Metal product Producers like Khukuri, Karuwa etc., aluminium fabricators, arc welders, gas welders, A/C Refrigerator Technician, Steel Furniture Maker, Sheet metal worker, Lathe Machine Operator, City Rickshaw Repairer, Machine Operator
- V. Communication and Information Technology: Computer Hardware Technician, Mobile Phone Repairer Technician, FM technician, Telecom technician, Lap top Repairing Technician
- VI. Automobile Sector: Automobile Mechanics, Motor Cycle Service Mechanics etc.
- VII. Tourism/ Hospitality Sector: Cook, Waiter/Waitress, Bakery, Food Processing Technician, House keeper, Sweets and Snacks Maker, Barista, Mixed Cook, Home Stay Assistant
- VIII. Textile/ Garment: Dress Maker, Dhaka Weaver, Allo Processor, Garment Fabricator, Master Tailor, Boutique Maker
- IX. Health: Barber, Beautician, Dental Hygienist, Dental Assistant

General Recommendation

- I. To ascertain the need of the workforce in each occupation, Rapid Market Appraisal (RMA) needs to be carried out before the delivery of the training in each occupation.
- II. Full apprenticeship mode of trainings is recommended in Automobile and Mechanical sector for quality training delivery since it requires heavy equipment and workshop. The training providers don't have such settings. Likewise, this mode of training is recommended partially in Textile/Garment and Hospitality sector based on feasibility. The trainings are recommended either as apprentice mode or for enterprise development.
- III. Since industries in Nepal are very fragile due to political influences through trade-unions, strong government attention and support is required to enhance conducive environment.

- IV. Since industrialists were found frustrated from newly endorsed labour law of Nepal, Government of Nepal need to dialogue with industrialists to ensure for the growth of the industries
- V. Since the employment opportunities in Nepali Labour market are not lucrative for wage employment, Skilled graduates needs to be supported for enterprise development to stop them going abroad for employment.
- VI. Effective Monitoring Mechanism needs to be established to ensure the quality of training.

Specific Recommendations for apprenticeship training

- I. Targeted number of trainees for apprenticeship training (15000) is quite higher than the capacity of industries to recruit apprentices in the industries. Thus, it is recommended to reduce the target of apprenticeship training target from 15,000 to 6,000 for the project period
- II. Only the big industries like Reliance Spinning Mill Pvt. Ltd, Aryant Multi Fiber Ltd, etc. were found able to hire significant number of apprentices with more than 500 apprenticeships for two years other industries are able only to hire two to three apprentices in a year.
- III. Duration of contract period between industrialist and apprentices for the apprenticeship training should be at least one year including six month after training employment. This may increase the cost of training than we had estimated before.
- IV. Based on the increasing number of industries and industry friendly policy of Government of Nepal, there could be other many industries interested to work on apprenticeship modality so regular assessment and interaction with potential industries is recommended so as to ensure employment with minimum cost of training.

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Annex-1

SN	District	Sector wise no. of existing workers and additionally required workers									
		Construction		Agriculture		Mechanical		Electrical		Communication & IT	
		No. of Existing workers	No. of additional Demand	No. of Existing workers	No. of additional Demand	No. of Existing workers	No. of additional Demand	No. of Existing workers	No. of additional Demand	No. of Existing workers	No. of additional Demand
1	Bara	800	1500	2500	1500	2200	1500	120	160	280	150
2	Bhojpur	500	700	900	800	242	300	80	145	30	50
3	Dhankuta	600	600	1600	900	275	250	157	125	100	80
4	Dhanusha	780	1400	2500	1400	1500	1500	150	300	300	320
5	Khotang	500	800	1500	900	300	250	50	180	30	200
6	Mahottari	600	1100	1500	1500	1400	1500	120	265	200	50
7	Morang	1600	900	2500	1200	2600	2000	400	400	230	300
8	Okhaldhunga	1200	1000	1500	800	400	500	200	150	25	200
9	Rautahat	1600	1300	2500	1300	1400	920	250	300	150	67
10	Saptari	1700	1400	1300	1400	1350	1800	300	280	160	100
11	Sarlahi	1500	1500	2500	1400	1300	2000	180	320	240	150
12	Sindhuli	1833	1630	1200	1250	450	300	220	280	150	100
13	Siraha	1300	907	2700	1300	1200	2200	250	255	200	550
14	Sunsari	1400	1400	2400	1850	2500	2050	400	550	250	250
15	Terathum	1300	1500	2100	1400	400	350	85	170	150	33
16	Udayapur	1200	1600	1500	1100	300	350	150	250	152	115
	Grand Total	18413	19237	30700	20000	17817	17770	3112	4130	2647	2715

Annex 2

SN	District	Sector wise no. of existing workers and additionally required workers									
		Automobile		Tourism and hospitality		Textile (garment and tailoring)		Health		Miscellaneous	
		No. of Existing workers	No. of additional Demand	No. of Existing workers	No. of additional Demand	No. of Existing workers	No. of additional Demand	No. of Existing workers	No. of additional Demand	No. of Existing workers	No. of additional Demand
1	Bara	90	200	400	460	300	200	250	100	120	460
2	Bhojpur	20	50	200	150	80	100	150	70	80	210
3	Dhankuta	30	100	650	250	250	150	155	80	73	230
4	Dhanusha	90	200	400	400	470	200	350	100	150	500
5	Khotang	10	40	210	500	250	100	150	100	70	230
6	Mahottari	80	140	250	500	250	150	250	100	160	450
7	Morang	90	285	500	400	400	600	400	100	160	550
8	Okhaldhunga	20	40	250	60	420	100	150	100	60	200
9	Rautahat	80	200	890	650	450	200	250	90	150	350
10	Saptari	100	80	320	450	330	230	250	90	120	450
11	Sarlahi	80	100	310	100	360	160	250	100	160	350
12	Sindhuli	30	60	450	500	200	150	160	110	150	300
13	Siraha	90	100	340	200	350	180	150	110	150	399
14	Sunsari	100	100	800	700	350	220	300	200	140	550
15	Terathum	30	60	230	350	200	150	150	80	60	310
16	Udayapur	90	50	343	150	240	100	150	80	150	300
	Grand Total	1030	1805	6543	5820	4900	2990	3515	1610	1953	5839

Annex-3: Key informants' details of Key Informant Interview, Focus Group Discussions

District, Venue	Informants	Designation and Company	Contact No.	Methodology
Baleni, Khurkot, Khaniyakhar bazar of Sindhuli	Puspa Bdr Karki	Chairperson-Golanjor Rural Municipality	9854041775	Key Informant Interview and Observation
	Madhav Poudel	Proprietor-Sweet & dairy shop	9741040903	
	Gopal Shrestha	Proprietor-Fresh House		
	Binod Dhodhari	Proprietor-Khuwa producer/Udyog	9841474770	
	Binesh Shrestha	Chairperson- DCCI, Sindhulimadhi		
Sindhulimadi & Panitanki of Sindhuli	Badri B. Karki	Chairperson-Hotel Association/ Hotel and proprietor of Himshikkhar	9844040895	
	Tanka Bdr Karki	Proprietor- Badri Furniture Udhyoy	9854040533	
Sindhulimadhi, Ranichuri, Kamalmai of Sindhuli	Nabaraj Khadka	Executive- Agro-business promotion and market development directive	9844095083, 047-520454	
	Ashok Raj bhandari	Chairperson- Federation of Cottage and Small Industry	9844139897	
	Dinesh Giri	Unemployed youth		
	Nirmala Moktan	Myadhi police	9817898219	
	Peshal Kumar Shrestha	Chairperson- Electronic business association	9844041367	
	Anshu Giri	Executive member of Nepal Auto-mechanics Trade Union	9851074732	
Biratnagar, Morang	Rajan Shrestha	Chairperson of HAN	9852020177	Key Informant Interview and observation
Khanar, Morang	Nimesh Pradhan and Surendra Chapagain	Manager- Pulse Fashion Solution Pvt Ltd and Garment Industry	9812324200	
Biratnagar, Morang	Mohan Ghimire and Manoj Gupta	Director- Executive Director of Raghupati Jute Mill Industries		Key Informant Interview and Observation
Bhedetar, Dhankuta	Lila Waiba and Jitendra Shrestha	Chairperson and Secretary of Hotel Association		Key Informant Interview and Observation
Dharan, Sunsari	BasuDev Baral	MD- Hotel Sechha	9852056496	Focus Group Discussion
	Nabin K Shrestha	Proprietor- The Ratnalnn	9842082526	
	MahendraPradhan	MD- Hotel Hungry Eye	9852047222	

District, Venue	Informants	Designation and Company	Contact No.	Methodology
	Ramesh Shrestha	MD- Hotel Navayug		Key Informant Interview and Observation
	Krishna Pathak	MD- Hotel Dharan Kitchen	9852056606	
	Kamlesh Shrestha	Proprietor- Dharan Diary Product Industry	9852049549	
	Manmohan Shrestha	Proprietor- Popular Plastic UdyogPvt Ltd		
	D.B. Tiwari	Manager - Reliance Nepal - Spinning Mill Industry		
	Krishna Agrawal	Rumpum Noodles Industries		
Dharan, Sunsari	Sonu Goyel	TATA Mobile workshop		Key Informant Interview and Observation
	Gopal Acharya	Yamaha Dealer (2 Wheelers) & Suzuki (4 Wheelers)		
	Romi Moktan	Mahindra Showroom		
	Shonu Agrawal	Global Auto Traders	9852045851	
	Ramesh Shrestha	Hotel Arun Top & Lodge	025-40039	
	Basudev Baral	Proprietor- Hotel sechh		
	Anita Shah	Dikshya Shah	9842209412	
Manglung, Terhathum	Srijana	Srijana Dhaka Udhyog		Key Informant Interview and Observation
	Dhanga Raj Parajuli	Parajuli Dhaka KapadaUdhyog		
	KhadakBdr Shrestha	Phoolbari Furniture		
	HariPrdSamgaham te	Shree Janga Motors Workshop	9852060647	
Bhojpur	UshaRai	Hotel Bhojpur		Key Informant Interview and Observation
	SagarUdas	Taxar Light House		
	Chandra K. Shrestha	Rose Furniture Udhyog	029-420476	
	BikramRai	Bikal Brother Auto	985207999	
	TufanKirat	Hotel kirat inn	9852052111	
Saptari	Shankar Das	Proprietor, Jagadamba Brick Industries Prasbani, Saptari	9852820387	Key Informant Interview and Observation
Siraha	Anil Kumar Jha	Manager, Ever Green Ply Industries Lahan, Siraha	9842823176	Key Informant Interview and Observation
Siraha	Hari Shankar Shah	Chairperson, CCI. Mirchaiya	9852834341	
Siraha	Bजारंग कुमार शाह	Proprietor, S. M. Product Mirchaiya, Siraha	9801514778	

District, Venue	Informants	Designation and Company	Contact No.	Methodology
Siraha	Shambhu Lal Chaudhary	Head of Churiya Agrotech & Research Centre Lahan, Siraha	9842827040	
Siraha	Nanda Kishor Chaudhary	Office Secretary, CCI. Lahan, Siraha	9842826486	
Siraha		Office Secretary, CCI. Siraha	9842918567	
Siraha	Mukunda Adhikari	Manager, Himalayan Hume pipe & Concrete Industry Pvt. Ltd. Lahan, Siraha	9808025737	
Saptari	Milan	Proprietor, Milan Dairy & Food Industries Pvt. Ltd. Gajendra Narayan Industrial Zone, Saptari		Key Informant Interview and Observation
Sarlahi	Krishna Karki	Manager, A. C. Food Industries Pvt. Ltd. Malangawa, Sarlahi		
Sarlahi		Proprietor, Shah Group up Industries Pvt. Ltd. Malangawa, Sarlahi		
Bara		Manager, Narayani Micro Product Kalaiya, Bara		Key Informant Interview and Observation
Bara	Rajendra Shah	Manager, Pashupati Coating Industries Kalaiya, Bara	9845057996	
Bara	Mohan Chhetri	Proprietor, Sagun Hotel Simara, Bara		Key Informant Interview and Observation
Bara	Dr. Krishna Paudel	Mayor, Jeetpur Simara Sub-Metropolitan		Focus Group Discussion and Observation
Bara	Saraswoti Chaudhary	Deputy Mayor, Jeetpur Simara Sub-Metropolitan		
Bara	Babu Lal Chaudhary	Leaf Manager, Surya Nepal Pvt. Ltd. Bara		
Bara	Dip Narayan Ray	Managing Director, Kushal Byabasayatatha Talim Kendra Pvt. Ltd.	9845316925	
Khotang	Rajendra Layalu	President, Khotan Chamber of Commerce and Industries	9842849202	Key Informant Interview and Observation
Okhaldhunga	Gyanendra K. Maskey	President, Okhaldhunga Chamber of Commerce and Industries	9851177398	Key Informant Interview and Observation

District, Venue	Informants	Designation and Company	Contact No.	Methodology
Udaypur	Rajesh Chandra Shrestha	President, Udayapur Chamber of Commerce and Industries	9841251310	Key Informant Interview and Observation
Mahottari	Kripa Shanker Sah	President, Jaleshower Chamber of Commerce and Industries		Key Informant Interview and Observation
Dhanusha	Lalit Kumar Sah	President, Janakpur Chamber of Commerce and Industries	9854020023	Key Informant Interview and Observation
Rautahat	Mohan Prasad Gupta	President, Mahottari Chamber of Commerce and Industries	9854031864	Key Informant Interview and Observation

Annexes-4: Sample FGD and semi structured interview

FGD with Local automobile dealer

Date: 11 January 2018

Venue: Dharan

Participants

Sonu Goyel (TATA Mobile workshop Dharan, Gopal Acharya (2 wheelers Yamaha dealer & 4 wheelers Suzuki dealer), Romi Moktan (Mahindra Showroom Dharan), Balmukunda Neupane (EFS-Kathmandu),

Summary of Discussion

Findings

- There are around 30 dealer and workshop of automobile in Koshi and about 100 dealers in Mechi and Koshi altogether.
- No or zero production of automobile technician in eastern region.
- Automobile dealer are hiring trained & skill human resource from India and Bangladesh for their workshop.
- In Nepal only Siprodi Kathmandu is providing basic technical training for automobile sector but the production is not sufficient to fulfil the requirement of all workshops.
- Siprodi Kathmandu has well set up for automobile training.
- If automobile training could provide for woman participates the working environment would be healthy and decent in automobile sector.
- Single regional workshop is not able to provide training for 20 participate in one batch because it is expensive to provide training. Furthermore 20 participate are large amount of worker since they already have sufficient workers in their workshop.
- In automobile sector there are many sub sector such as; mechanic, servicing, denting painting, sales, marketing, supervisor, store keeper participant , indoor sales, reception etc. School dropout are able to work in all trade because of software base computerize system applying on workshop.
- Scarcity of skilled human resource in servicing, body workshop, fuel injection line denting painting & mechanic. These trades don't need educated human resource.

Recommendation

- Better to make 9 month training content (6 month technical training and 3 month OJT) of automobile technician.
- Better to coordinate with experienced automobile owner for content development of automobile sector.
- After receiving basic automobile training of 3 months, the content should be categorized in to sub-sector such as Indoor sales, Reception, Store keeper, Denting painting, Servicing, mechanic etc., as per participate interest, for better job guarantee
- It is better to go through training institute for basic theory class
- EF has to bear the cost of consumable material during the practical class of workshop.

Semi Structure Interview with Balaram Joshi

Sipradi automobile workshop Itahari

Findings

- Sipradi is providing automobile training for 12 trainees every year specially for those who have poor economic condition
- Sipradi is planning to expand 4 workshop and 12 servicing centre in Nepal
- For auto-mechanic technician minimum requirement should be SLC pass
- Center office of Sipradi Kathmandu is planning to open technical school for skilled automobile technician.
- Every automobile centre is facing the crisis of skilled labour.
- Sipradi Itahari is agreed to provide practical class in their workshop for 5 trainees in one batch.
- Sipradi is also planning to provide technical training to road mechanic too.
- Mr. Sambhu Prasad Dahal, the CEO of Sipradi is interested to produce skilled human resource on automobile sector.

Challenge

After completion of training, graduates want to go abroad for better income