



Skills Gap Analysis

SINDH



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Sindh

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ACRONYMS USED

AAP	Annual Action Programme
AJK	Azad Jammu and Kashmir
CBT&A	Competency-based Training and Assessment approach
CIT	Computer & Information Technology
CPEC	China Pakistan Economic Corridor
DAE	Diploma of Associate Engineer
EU	European Union
GB	Gilgit Baltistan
NAVTTTC	National Vocational and Technical Training Commission
NSIS	National Skills Information System
NSS	National Skills Strategy
NVQF	National Vocational Qualification Framework
PBOS	Provincial Bureau of Statistics
TEVTAs	Technical and Vocational Training Authorities
TNA	Training need assessment
SSP	TVET Sector Support Program
TVET	Technical & Vocational Training
TWG	Technical Working Group

EXECUTIVE SUMMARY

The development of the skilled workforce plays an important role in the growth and development of country. The measurement of skills gap in the labour market assists and guides policy makers in the right direction, towards promoting a balanced labour market. In Pakistan, the persistence of a skills gap is an important barrier to higher industrial growth and productivity and harmonization with international standards. The National Skills Information System (NSIS) (www.skillingpakistan.org) has been created to provide ready information on skills related information to different stakeholders.

In this regard, the NSIS has conducted demand side data collection from employers in the manufacturing, construction, services and energy & power sectors within the province of Sindh. The objective is to know about the pattern of existing skilled workforce in these sectors/ industries, current skills deficiency and future requirement of skilled workforce. The existing demand of labour market has been matched with the annual supply of skilled workforce coming from TVET institutes, to calculate the skills gap of provincial labour market.

There are total of 620 registered TVET institutes in the province, which include 196 technical and 424 vocational training institutes. In Sindh, the share of enrolment in male technical institutes is around 95%, while female share is only 5%. On the other hand, the proportion of male enrolment in vocational institutes is 60%, while female enrolment stands at 40%. The female student teacher ratio in technical and vocational institutes is 5:1 and 41:1 respectively, compared to 25:1 and 27:1 for male institutions. This indicates under enrolment of females in technical education institutes and over enrolment in vocational training institutes.

Employers in the manufacturing sector have a wider coverage in the demand side survey at over 83%, followed by services at (12.5%), construction at (3.8%) and energy & power at (0.5%). The share of TVET graduates in skilled workforce is highest in the services and manufacturing sectors at 26% and 25% respectively, followed by the construction and energy sectors at 21% and 17%, respectively. The main source of skilled workers in the surveyed establishments is through work based learners from the informal sector, indicating that TVET institutes are meeting only a small share of the industry demand.

In terms of the employer's satisfaction with the skills of TVET graduates, the highest proportion of satisfied employers is in the manufacturing sector at 38%, followed by services and construction sector, both at 37%, while employer satisfaction is relatively low (33%) in the energy and power sector. The proportion of employers reporting deficiency of skilled

work force is the highest in energy & power sector (50%), followed by manufacturing (21%), construction (21%) and services (19%).

The estimates of annual skilled workforce demand in different sectors of the provincial economy show that the highest demand exists in the manufacturing sector at around 79,560, followed by 13,815 skilled workers required in services, 8,670 in construction and 3,223 required in the energy and power sector. In comparison, the annual supply of skilled workforce through the TVET system at 64,862 falls short of the total demand of 105,268 skilled workers across different sectors, implying an annual shortfall of around 40,400 skilled workers in the provincial labour market. The demand of short courses is at 12%, but the supply is at 70%, which is creating unemployment in labour market.

The analysis of shortfall of skilled workforce by level of technical/vocational education shows that in the manufacturing sector, which has the largest overall shortfall of skilled workers, the highest proportion of demand is for diploma holders (47%), followed by certificate holders (25%) and DAE qualified workers (15%). For the services sector, highest share of demand is for diploma holders at 58%, followed by certificate holders (30%). In case of the construction sector, demand for certificate holders is highest at 45% followed closely by diploma holders (39%). Demand for the higher qualified skilled workers, such as DAE and B. Tech qualified is relatively high in the energy and power sector, where 47% of the total shortfall in demand is for DAE holders and 13% for B. Tech qualified technicians.

There is a large mismatch between the supply and demand of technical skills across different DAE programs, with the supply of DAEs by technical institutes exceeding demand, in 5 disciplines – civil, electrical, CIT, mechanical and electronics. On the other hand, demand exceeds the available supply in four DAE disciplines—apparel, chemical and garments and B. Tech electrical.

The analysis of demand supply gap of skilled workforce, in terms of vocational training, shows that for eight trades—machine operators, helpers, cooks, waiters, plant operator, boiler operator, graphic designer and printing machine operators, the figure adds up to 30,320 workers representing 65% of the total shortfall across all the vocational training areas. In a total of 137 vocational professions, the overall shortfall of employers in different sectors stand out at around 46,250, while in 46 vocational training areas, existing supply exceeds the industry demand, with excess supply totalling just over 21,000.

The findings will help TVET planners and practitioners at provincial and federal level, in formulation of inform decision making, designing and implementation of need based training system. Such initiative will help to reduce skills mismatch and create balance in local labour market.

INTRODUCTION

Measuring skills gaps in the labour market assists policy makers in taking informed decisions for enhancing the quality of skills supplied to labour market, improving the business climate. The regular research and monitoring of the skills gaps can enable policy makers to improve the TVET system and to produce a demand based and flexible skilled workforce. This is essential for improving the country's international competitiveness, which can help attract investment and foster higher economic growth. The skills mismatch in the Pakistan national and provincial labour market is the result of lack of coordination among the training providers/TVET authority and employers.

Recognizing the critical role of skills development in achieving sustained economic and social development, maintaining global competitiveness and responding timely to changes in technology and work patterns, has committed the Government of Pakistan to a major reform of its Technical, Vocational Education and Training system. Since April 2011, the TVET Sector Support Programmes (SSP) has been assisting the Government of Pakistan in the implementation of its ambitious TVET sector reform. The programme is co-funded by the European Union and the Federal Republic of Germany and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH¹. Programme partners include the National Vocational and Technical Training Commission (NAVTTTC), the Technical and Vocational Training Authorities (TEVTAs) in provinces and regions, and a large number of other stakeholders.

The National Skills Strategy (NSS), which forms the basis of the on-going reform in the TVET sector, has the following three objectives:

- (i) Providing relevant skills for industrial and economic development
- (ii) Improving access, equity and employability
- (iii) Assuring quality to address the major issues confronting the TVET system.

Under the guidelines provided in the NSS and the Vision 2025, the Ministry of Federal Education and Professional Training has developed a broader National TVET Policy with the consultation of various stakeholders from both the public and private sectors. The TVET policy places emphasis on increasing training opportunities for young people, skilling existing workers through assessment, implementing the National Vocational Qualification Framework

1 Project document TVET SSP

(NVQF) through Competency-based Training and Assessment approach (CBT&A).

NATIONAL SKILLS INFORMATION SYSTEM

The SSP supported NAVTTC in the establishment of National Skills Information System (NSIS). The NSIS supports decision makers and TVET planners in policy formulation and execution by providing research based labour market data. It also facilitates career guidance and placement services for TVET jobs seekers and employers. The main objectives of the NSIS Cell² include:

- To develop/provide a reliable National Skills Information System for workforce development in employable skills;
- To provide timely and accurate information on demand and supply analysis, to TVET planners, training institutes, industry, academia, students and public in general; and
- To establish and facilitate career/vocational guidance and placement services for TVET graduates and potential employers.

It is essential to have a complete picture of skilled workforce supply to labour market and skills demand. The mismatch in the skilled force supply and demand is the main cause of the high unemployment rate of TVET graduates. In order to ensure proper functioning of NSIS and accuracy of the information/data available, it is important to feed in the system labour market data covering supply and the demand. The supply side data, i.e., data from TVET institutes and provincial/regional TVET governing bodies (e.g. TEVTAs) was added through the supply side census last year. The demand side data i.e. data from the employers and industry on skilled workforce requirement has been collected already for Khyber Pakhtunkhwa (KP), Baluchistan, AJK, Gilgit and Sindh.

Institutional arrangements for collection of data is an integral part of the NSIS. The ability to collect and gather relevant information on regular basis, in a sustainable manner by NSIS is directly dependent on the institutional structure in which the system operates. Linkages are required between government departments responsible for various policies affecting the labour market, on the one hand, and statistical agencies on the other. The use of administrative records or a structured data base, involves establishing a network of many organisations, including both users and producers of information.

OBJECTIVES OF REPORT

The overall objective of this report prepared by the NSIS Cell is to collect data to calculate the labour market demand for skilled workforce in Sindh to fulfil the following purpose:
Calculate and forecast the skilled workforce demand of the provincial labour market.
Compute trade wise, the supply of skilled workforce produced annually by TVET institutions in the province.

2 NSIS Project Documents

Estimate supply-demand skill gaps by different skills/trades in the provincial labour market. Generate actionable policy recommendations for reducing skill-deficit gaps in the province.

METHODOLOGY

On the recommendations of Technical Working Group (TWG), the NSIS Cell developed a short questionnaire demand side data collection on skilled workforce from major industries/employers in the province. This demand side questionnaire has been applied to the target area of Sindh, with support of provincial departments. Data from around 9,000 establishments (large scale industries) has been collected from within the province, as shown in the table below. Supply side data collection on the number of TVET graduates produced annually is a regular process of information gathering from all public and private TVET institution across the country since 2015. The demand and supply information was collected by the following provincial agencies:

Sample Size

Sector	No. of Units
Manufacturing	6007
Construction	2028
Services	1291
Energy & Power	24
Total	9350

1. Provincial Bureau of Statistics (PBOS) of Sindh
2. Provincial TEVTA

Each field team of the PBOS and S-TEVTA has collected data from the assigned area. Data was collected from following four main sectors based on the local economy of Sindh:

1. Manufacturing Sector
2. Construction Sector
3. Services (Hospitality sector)
4. Energy & power

Each team visited the industrial zone, hotels/restaurants, construction and site area of power generation and their offices. The provincial bureau of statistics was responsible for ensuring data quality and editing.

In first phase, the demand-side questionnaire was restricted to three main indicators on the request of employers in Technical Working Group (TWG) for trust building between employers and the NSIS cell. In future, a revised questionnaire with multiple indicators will be shared with TWG for approval. Following are the indicators against which data was collected.

- Existing technical staff (trade, level and gender wise)
- Existing skilled workforce deficiency (trade & level wise)

- Future skilled workforce requirements (trade and level wise).

For this purpose, the Industries Department nominated 46 people who collected data from the above mentioned economic sectors from their respective assigned area.

Data Quality

The data quality was ensured through comprehensive training of field staff and random spot checking. Director industries department and NSIS were directly involved in the data collection process to ensure data quality and data editing of all questionnaires before data entry.

Data Analysis

Data analysis was carried out at NSIS Cell with data analysis software STATA, the main purpose of the analysis was to identify the supply and demand of skilled workforce, through skills gap analysis.

MAIN FINDINGS

TYPE OF TVET INSTITUTE

Figure 1 reflected below shows the availability of technical education and vocational institutes in the province of Sindh. There are total of 620 such registered institutions working in the province, with the majority of these involved in vocational training at 68% (424). The remaining 32% - 196 are engaged in providing technical education, both in the public & private sectors. The skilled workforce demand in Sindh is much higher than annual skilled workforce supply. This skill mismatch is one of the main reasons for the high unemployment rate of skilled youth. The skilled workforce supply in vocational trade is comparatively higher than the demand.

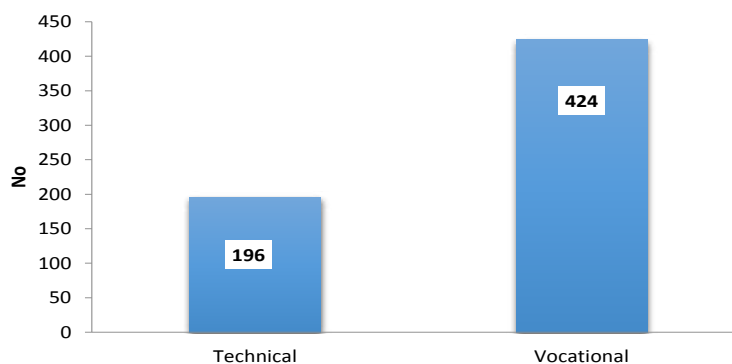


Figure 1: Type of TVET Institute

TYPE & GENDER WISE SKILLED WORKFORCE SUPPLY

The distribution of TVET institutes in Sindh by gender shown in figure 2, further elaborate the access of both gender to technical and vocational training. The analysis indicates that most students in technical education institutes is male at 95%, with the share of females being only 5%. On the other hand, the share of female enrolment in vocational institutions is 40%, while the share of males is 60%. Female population being at around 48%, it is essential to increase female participation in TVET system.

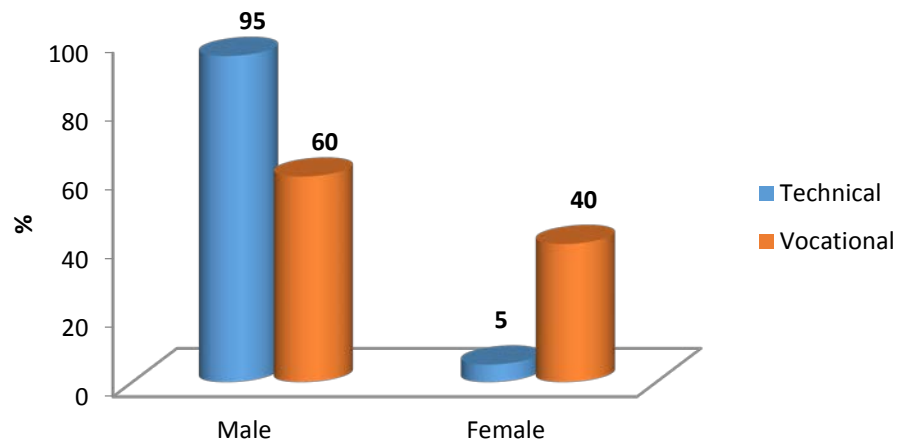


Figure 2: Type & Gender Skilled Workforce

STUDENT TEACHER RATIO

The student teacher ratio is usually used as a yardstick for assessing quality of education in any educational system, with a lower ratio showing that a teacher is available, on average, for a smaller group of students, indicating better quality of education delivery. Figure-3 presents data on the student teacher ratio (number of student per teacher) separately by technical and vocational institutes and by gender. It is seen that this ratio is lower across the technical education institutions and comparatively higher across the vocational training institutes. In terms of the gender breakup, it is observed that this ratio is much lower for female technical training institutes compared to male institutes (5 vs. 25). In case of vocational training, this ratio is lower for males at 27 compared to females at 41. This is indicative of the comparatively lower level of enrolment in female technical education institutes and relatively higher enrolment in female vocational training institutes. On male side in both technical and vocational institute the ratio is close to the set benchmark.

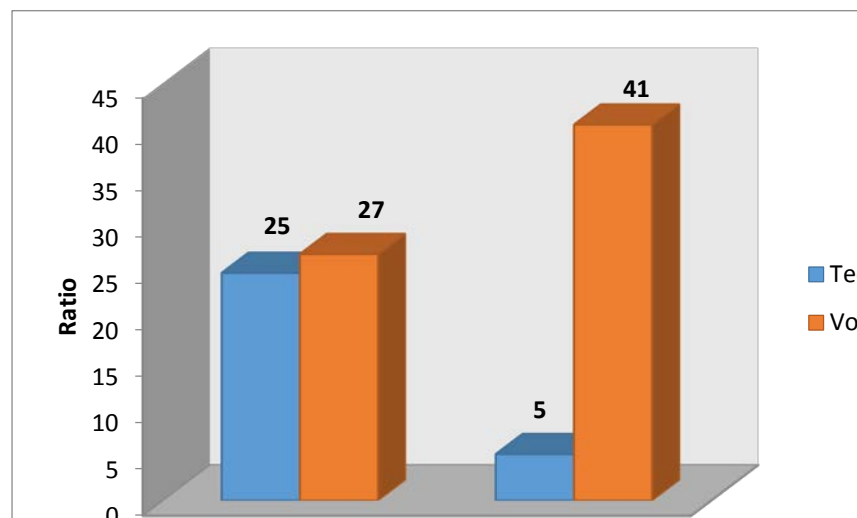


Figure 3: Student Teacher Ratio

DEMAND OF SKILLED WORKFORCE IN SINDH

SECTOR WISE COVERAGE

The sector-wise distribution of the establishment level survey to assess demand for skilled workers across Sindh is presented in figure 4. Detailed information on employer requirements of skilled workers have been obtained using a specifically designed questionnaire, attached in Annex 2. Establishments working in the manufacturing sector have the highest share of coverage within the survey at 83.2 percent of the total establishments covered. This is followed by services at 12.5%, construction 3.8% and energy & power with lowest proportion.

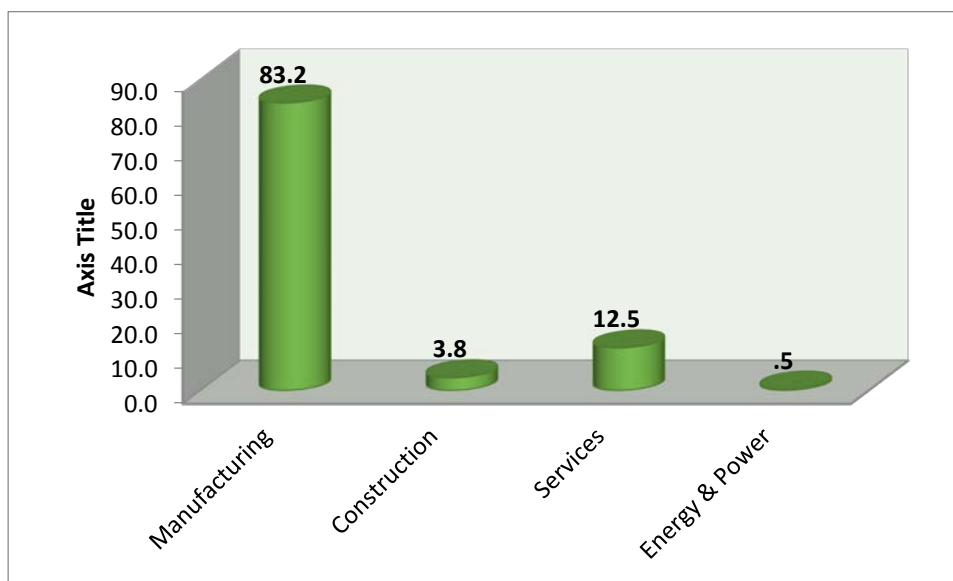


Figure 4: Sector Wise Coverage

SOURCE OF EXISTING SKILLED WORKFORCE

Information on the sources of existing skilled workforce working with employers of the selected sectors is presented in figure 5. The analysis shows that the share of TVET graduates is highest in the services and manufacturing sectors at 26% and 25%, followed by the construction and energy sectors at 21% and 17%, respectively. The main source of skilled workers in

the surveyed establishments is through work based learners, whose share is observed to be highest in the energy and power sector at 78% and lowest in the construction sector at 36%. Another important source for skilled workers is through the informal sector, with the highest share in the construction sector at 43% and the second highest source of skilled work force in the manufacturing and services sectors at 28% and 27%, respectively. The above analysis clearly shows that graduates of TVET institutes in the province are only fulfilling a small proportion of the demand for skilled workers across different sectors.

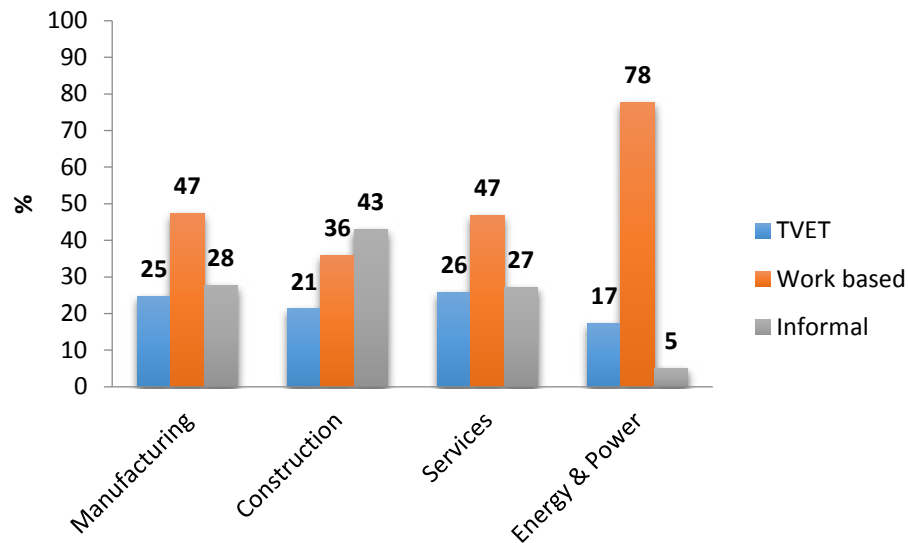


Figure 5: Source of Existing Skilled Workforce

SKILLED WORKFORCE DEFICIENCY IN LABOUR MARKET

The response of the employers when asked if they faced a skilled workforce deficiency in the different sectors is shown in figure 6 below. The highest deficiency of skilled work force has been reported in the energy & power sector, with half the employers indicating deficiency of skilled workers. This is followed by 25% of employers in manufacturing, 21% in construction and 19% in services respectively. Both the manufacturing and services sectors have the highest employment potential for skilled workers and a higher supply of skilled workers can help create additional employment opportunities in these sectors. These sectors should be considered in terms of employment potential, with a planned support for improving standards in the both technical and vocational institutes.

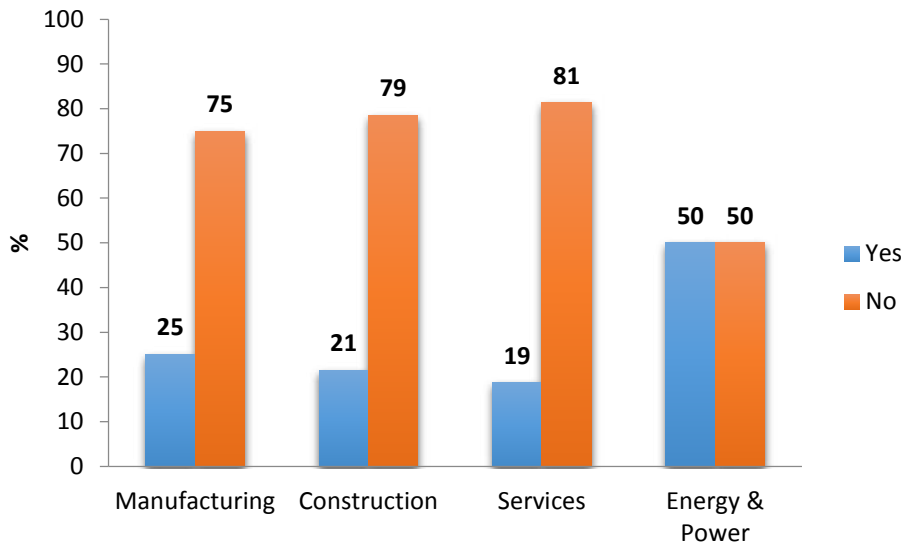


Figure 6: Skilled Workforce Deficiency in Labour Market

SECTOR WISE SKILLED WORKFORCE DEMAND

The overall situation of demand for and supply of skilled workforce in various sectors and trades is shown in the Skills Gap analysis presented in Annex-1. The aggregate demand for skilled workers across different sectors in Sindh using information from Annex-1 is presented in Figure 7. It is seen that the demand for skilled workforce is highest in the manufacturing sector at 79,560, accounting for around 76% of the total demand for skilled workers in the province. The second highest annual demand for skilled workers emanates from the services sector at around 13,815 (13%). This is followed by the construction sector at 8,670, and the energy sector, where annual demand is estimated at 3,223. Overall, annual demand of skilled workforce is 105,268 against the annual supply (64,862) of skilled workforce, suggesting a gap of skilled workers.

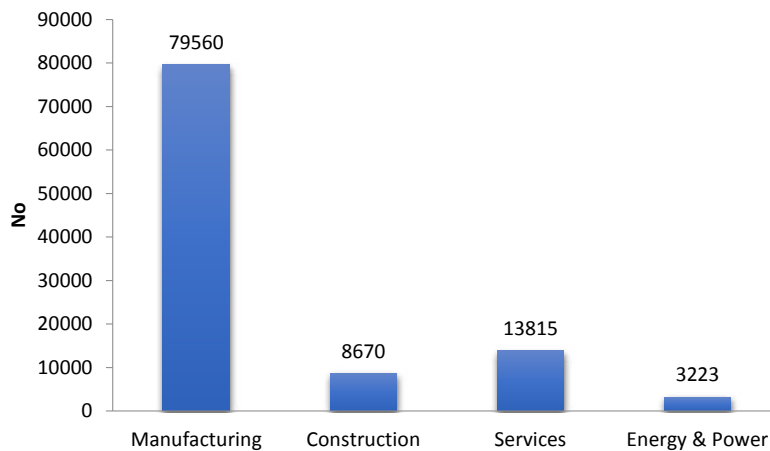


Figure 7: Sector Wise Skilled Workforce Demand

LEVEL WISE SKILLED WORKFORCE DEMAND

Figure 8 presents details of the shortfall of skilled workforce in the different sectors of the provincial economy of Sindh, by different level of technical/ vocational education. In the manufacturing sector, which has the largest overall shortfall, the highest proportion of demand is for diploma holders, accounting for 47% of the demand of skilled workers in this sector, which is followed by certificate holders (25%) and DAE qualified workers (15%). For the services sector, highest share of demand is for diploma holders at 58%, followed by certificate holders (30%). In case of construction sector, demand for certificate holders is highest at 45% followed closely by diploma holders (39%). Demand for the higher qualified skilled workers, such as DAE and B-Tech is relatively highest in the energy and power sector, where 47% of the total shortfall is for DAE holders and 13% for B. Tech qualified technicians.

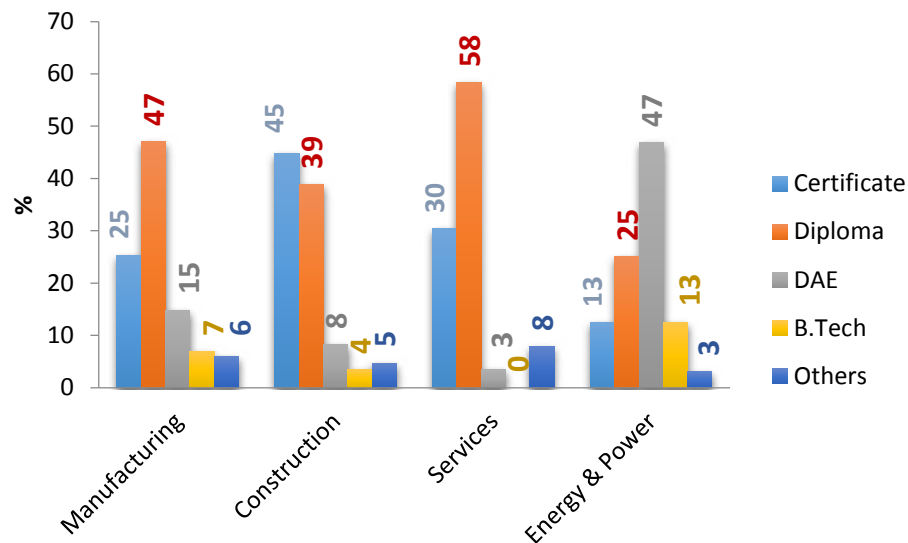


Figure 8: Level Wise Skilled Workforce Demand

EMPLOYER LEVEL OF SATISFACTION

The employer's satisfaction level with the skills of TVET graduates presented in figure-10 sector wise is the highest at 38% for manufacturing sector, 27% employers in this sector reported not being satisfied, while a significant proportion (35%) showed unawareness of the level of required skills. In services sector the share of TVET graduates stood at around 26%, the employer satisfaction level is 37%, 34% employers are not satisfied, while 29% showed unawareness of the levels of skills needed. In construction, the share of TVET graduate is 21%, 37% employer's expressed satisfaction on the level of skills of TVET graduate, 43% are not satisfied, while 20% are unaware of the level of skills of TVET graduates. In the fourth surveyed sector of energy and power, the employers' satisfaction is comparatively the lowest, only 33% reported being satisfied. However, it is important to point out that the share of TVET graduates is also the lowest in this sector at around 17%. The share of employers not

satisfied with the skill level of TVET graduates is also the lowest in this sector (22%), and a large proportion of employers seemed not satisfied with the skills of the TVET graduate gained through TVET institute, 44% are unaware of the skills of TVET graduates.

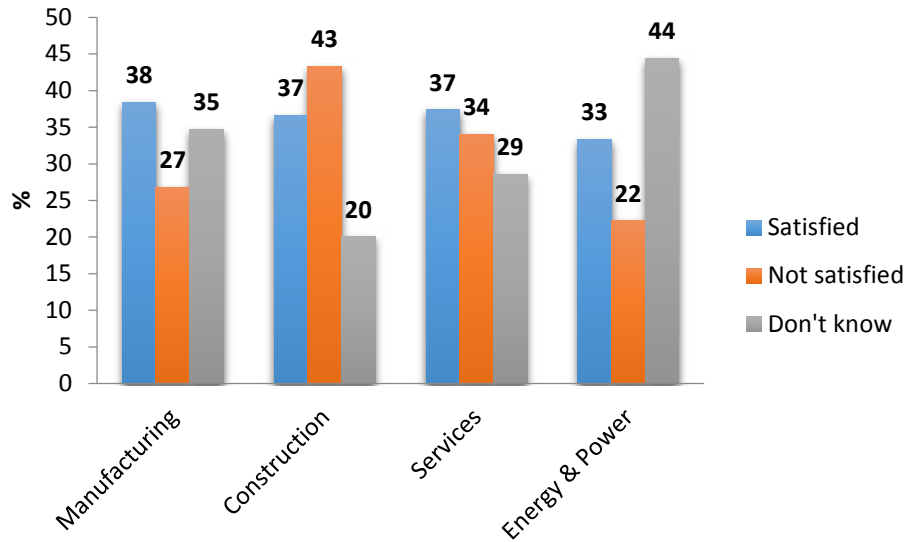


Figure 9: Employer level of Satisfaction

DEMAND VERSUS SUPPLY OF SKILLED WORKFORCE (TECHNICAL TRADES)

The demand and supply situation of skilled workforce by the top 15 technical trades in the surveyed sectors in Sindh is presented in figure 11. The technical education institutions issue degrees at the successful completion of the academic programs to their enrolled students, with the most common degree/ certification being diploma in associate engineering (DAE). The DAE is offered in a range of disciplines by Sindh Technical Education Board to students upon completion of studies in technical education institutes operating in the province.

The information presented in figure 11 indicates a large mismatch between the supply and demand of technical skills across different DAE programs. It can be seen that in case of 5 disciplines – civil, electrical, CIT, mechanical and electronics, the supply of DAEs by technical institutes greatly exceeds the industry demand. The demand of employers for DAE civil is just over 1,400, whereas the supply of skilled workers in this category is 6,914. For DAE electrical, existing demand is 1,120, while supply exceeds 5,800. In case of DAE in CIT, industry demand is 385, while the supply is more than seven times at 2,768.

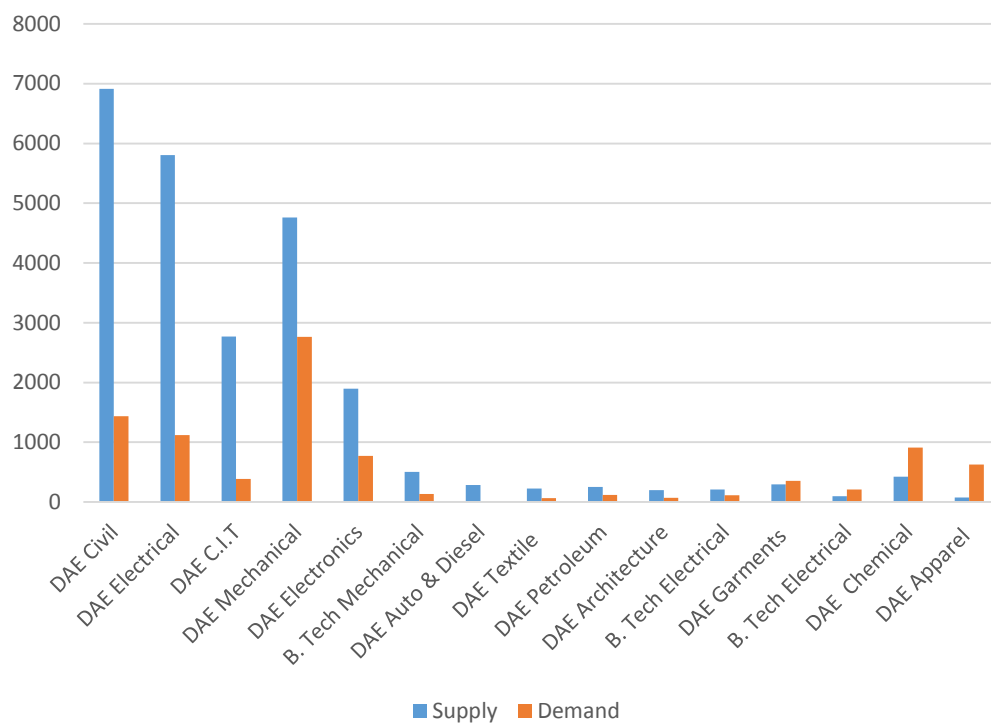


Figure 10: Supply vs. Demand of Skilled Workforce (Technical Trades)

The analysis further shows that in case of four disciplines, the demand exceeds the available supply, although the magnitude of excess demand is much lower compared to the excess supply observed earlier for the five technical trades. These technical trades include DAE in apparel, chemical and garments and B. Tech electrical. The demand is highest for DAE in apparel marketing and merchandising at 630, while the supply amounts to only 63. This is followed by DAE chemical, where demand stands at 910, whereas the available supply is less than half at 422. With higher qualifications in B. Tech Electrical, the industry demand is 210, whereas only 99 skilled graduates are available in this discipline.

DEMAND VERSUS SUPPLY OF SKILLED WORKFORCE (TECHNICAL TRADES)

The demand supply gap analysis of skilled workforce is listed, in terms of vocational training, given in figure 11 for the top eight vocational areas, with the highest gap. The vocational trades denote the trained and skilled workforce developed through training of varying duration from vocational institutions on various subjects. Across a total of 137 vocational professions, the overall shortfall in demand of employers in different sectors stands at around 46,250 given a supply of 37,655 workers from TVET institutes and a total demand of 83,906 workers (details in Annex-1). The total excess demand in the eight vocational professions shown in figure 11 comes to 30,320 workers, representing over 65% of the total shortfall with respect to demand across all the vocational training areas. In addition, there are 46 vocational

training areas, where the existing supply of skilled workers exceeds the industry demand, with aggregate excess supply in all these areas totalling over 21,000.

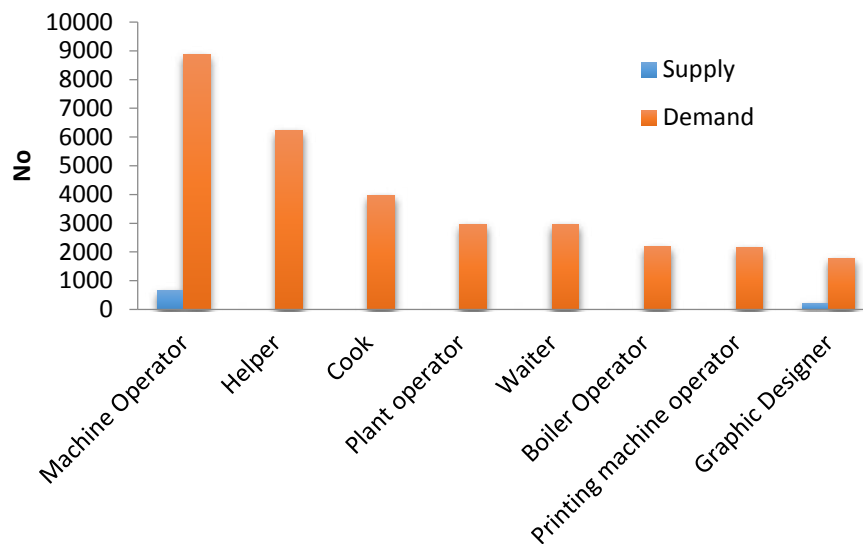


Figure 11: Supply & demand mismatch (Vocational Trades)

PROVINCE WISE OVERSEAS EMPLOYMENT TREND

The province wise information about the overseas employment trend in the year 2016, is given in figure 11. It can be observed that the share of Sindh in workers going for overseas employment is very small at 85326, representing just 10% of all overseas workers in 2016. The highest proportion of the overseas workers originate from Punjab, which is around 53% (446,566) of the total, while KP is at second place, with 25% (206,929) share in overseas employment. GB has the lowest share in overseas employment, may be due lack of awareness. The overseas workers figures presented here include both skilled as well as non-skilled workers that proceeded abroad for employment in 2016.

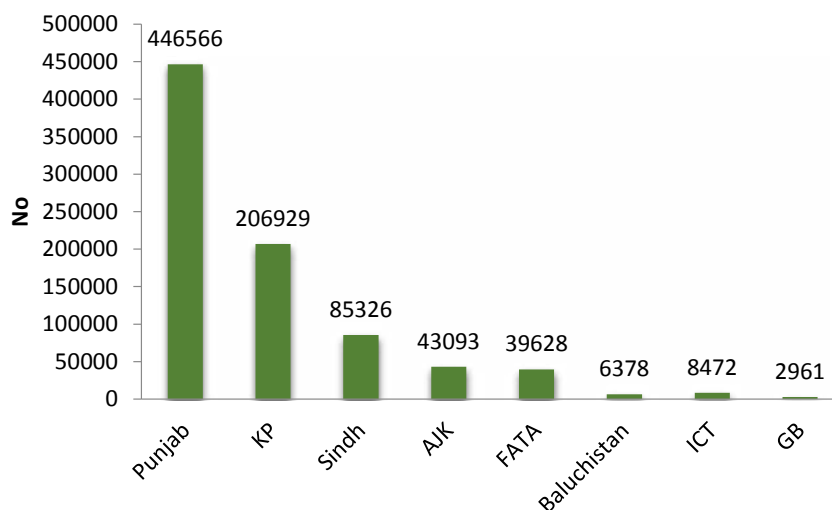


Figure 12: Province Wise Overseas Employment Trend

LEADING TRADES IN OVERSEAS JOB MARKET

Information on the leading skilled worker trades in overseas labour market is presented in figure 12. The leading trade being exported from Pakistan is drivers, accounting for 110,000 of skilled workers employed overseas annually. This is followed by masons (65,000), electricians (33,000), steel fixers (28,000), plumbers (27,000) and fitters (20,000).

The annual supply of skilled workforce for overseas employment shows that only a small number of skilled trades are represented in overseas employment. There is a need for including a broader set of trades in overseas employment for which the level of certification needs to be improved to match demand in the overseas markets. Demand based initiative at national and provincial level can improve the skilled workforce for national and overseas market employers, it can also improve the quality of the products.

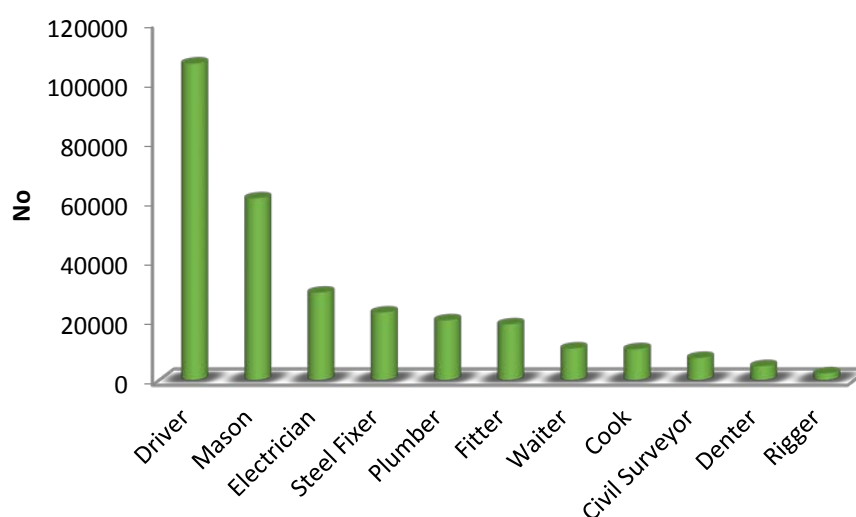


Figure 13: Leading Trades in Overseas Job Market

DISTRICT WISE OVERSEAS EMPLOYMENT TREND

The overall number of workers that have gone for overseas employment up to 2016 from different districts in the province of Sindh is shown in table-1. It is seen that a significant majority of overseas workers have proceeded for employment abroad from Karachi district accounting for 57.8% of all overseas employment from Sindh, making up over 520,000 workers. This is followed by Hyderabad 4.8%, Larkana 4.5%, Jacobabad (3.6%) and Dadu (3.3%), with the lowest overseas flow from Matiari, Tando Muhammad Khan, Tando Allah yar and Sujawal districts.

Table 1: District Wise Overseas Employment Trend

District	Number	Percent
Karachi (Central)	520465	57.8
Hyderabad	43575	4.8
Larkana	40387	4.5
Jacobabad	31965	3.6
Dadu	29811	3.3
Sukkur	28429	3.2
Nawabshah	25218	2.8
Shahadkot	18802	2.1
Ghotki	14835	1.6
Shikarpur	14647	1.6
Noushehro Feroze	13095	1.5
Khairpur	12645	1.4
Sanghar	12255	1.4
Karachi (East)	12055	1.3
Karachi (South)	11471	1.3
Mirpur Khas	10939	1.2
Korangi (west)	8873	1.0
Thatta	8658	1.0
Kamber	7668	0.9
Badin	7469	0.8
Malir	6608	0.7
Tharparkar	5383	0.6
Korangi	5375	0.6
Jamshoro	2497	0.3
Umerkot	2096	0.2
Kashmore	1945	0.2
Sujawal	833	0.1
Tando Allah Yar	800	0.1
Matiali	554	0.1
Tando Muhammad Khan	483	0.1

RECOMMENDATIONS

1. The Sindh TEVTA should make concerted efforts for ensuring that annual skilled workforce supply matches the demand of local labour market.
2. The technical education and vocational training institutions in the province should prepare trade wise and level wise skilled workforce in accordance with the demand and needs of local industry/ employers.
3. A research centre needs to be established at provincial TEVTA for conducting research and analytical work including regular collection of data on supply and demand to reduce mismatch. It should also undertake tracer studies to get insights into the employment of skilled workforce.
4. The Sindh TEVTA should give access to its database of skilled workforce to national level employers for facilitating employment of job seekers.
5. The provincial TEVTA needs to play a role in monitoring the performance of private TVET institutes with a view to ensuring that they give training in only those skills and trades for which market demand exists.
6. The provincial TEVTA should also share data of skilled job seekers with national database maintained by Bureau of Emigration and Overseas Employment and Overseas Employment Corporation for promoting employment in overseas labour market.
7. At the national level, the task of standardization and codification of technical and vocational courses needs to be urgently taken up by TVET stakeholders to harmonize technical and vocational education across the country.
8. Coordination and contact with employer's union (Chamber & Trade association) must be established on sustainable basis to produce need based skilled workforce.
9. Career counselling and job placement services need to be introduced at provincial level.
10. The Web based linkage of the National database and provincial TVETA's database are essential to reduce skilled workforce supply and demand gaps.
11. All the TVET stakeholders, policy makers, training providing institutes, employers, immigration bureau, and job seekers should use the platform to reduce the gaps between skilled supply and demand gaps.

ANNEX 1: SKILLS GAP ANALYSIS MATRIX

SKILLS GAP ANALYSIS (SUPPLY & DEMAND MISMATCH)

Table 2: Skills Gap Analysis

Province	Trade	Supply	Demand	Gaps
Sindh	DAE Mechanical	4761	2765	1,996
Sindh	Quality Control	0	2155	(2,155)
Sindh	DAE Civil	6914	1436	5,478
Sindh	Accounting & Auditing	545	1365	(820)
Sindh	DAE Electrical	5807	1120	4,687
Sindh	DAE Chemical	422	910	(488)
Sindh	Quality Assurance	0	805	(805)
Sindh	DAE Electronics	1897	770	1,127
Sindh	DAE Apparel marketing & Merchandizing	77	630	(553)
Sindh	DAE I.T	2768	385	2,383
Sindh	DAE Garments Technology	298	356	(58)
Sindh	Lab Analyst	0	315	(315)
Sindh	B. Tech (Hons) Electrical	99	210	(111)
Sindh	B. Tech Mechanical	503	135	368
Sindh	B. Tech (Hons) Mechanical	73	125	(52)
Sindh	DAE Petroleum	255	120	135
Sindh	DAE Telecom	162	116	46
Sindh	B. Tech Electrical	208	112	96
Sindh	DAE Solar energy	0	110	(110)
Sindh	DAE Food Preservation	157	108	49
Sindh	B. Tech Civil	227	70	157
Sindh	DAE Architecture	200	70	130
Sindh	DAE Fashion Design & Management	33	70	(37)
Sindh	DAE Hyderlic	0	70	(70)

Province	Trade	Supply	Demand	Gaps
Sindh	DAE Textile Dyeing & Printing (TDP)	225	67	158
Sindh	DAE Bio Medical	43	56	(13)
Sindh	DAE RAC	116	43	73
Sindh	DAE Auto & Diesel	286	0	286
Sindh	DAE Meteorology	55	0	55
Sindh	DAE Mining	47	0	47
Sindh	DAE Instruments & Process control	30	0	30
Sindh	DAE Animation	24	0	24
Sindh	Machine Operator	671	8890	(8,219)
Sindh	Helper	0	6230	(6,230)
Sindh	Plant operator	0	5975	(5,975)
Sindh	Waiter	0	3975	(3,975)
Sindh	Cook	0	3950	(3,950)
Sindh	Boiler Operator	0	3205	(3,205)
Sindh	CHEF (Cook)	0	3120	(3,120)
Sindh	Computer Operator	2906	2695	211
Sindh	Steel Fixer	0	2195	(2,195)
Sindh	Printing machine operator	0	2150	(2,150)
Sindh	Driver	0	1960	(1,960)
Sindh	Electrician	1049	1891	(842)
Sindh	General Fitter	274	1890	(1,616)
Sindh	Welding	926	1870	(944)
Sindh	Plumbing	715	1815	(1,100)
Sindh	Graphic Designer	210	1785	(1,575)
Sindh	Rigger	0	1596	(1,596)
Sindh	Lather Machine operator	0	1505	(1,505)
Sindh	Stitching machine operator	233	1260	(1,027)
Sindh	Shuttering Carpenter	0	1260	(1,260)
Sindh	Mason	0	1225	(1,225)
Sindh	Security Guard	0	1190	(1,190)
Sindh	Computer Application & Programming	1038	1130	(92)
Sindh	Dyeing & Bleaching	0	1120	(1,120)
Sindh	Salesman	0	1085	(1,085)
Sindh	Tailoring and Dress Making	3946	967	2,979
Sindh	Printing & Graphics Art	38	945	(907)
Sindh	Tiles Fixer	0	875	(875)
Sindh	Dyeing Maker	0	840	(840)
Sindh	Crane Operator	0	825	(825)

Province	Trade	Supply	Demand	Gaps
Sindh	Turner	259	805	(546)
Sindh	Mill Technician	0	805	(805)
Sindh	Oilman	0	800	(800)
Sindh	CNC Operator	0	792	(792)
Sindh	Garments making	906	658	248
Sindh	Furniture Designer	0	630	(630)
Sindh	Health & Safety officer	0	607	(607)
Sindh	Forman	0	595	(595)
Sindh	LMO machine operator	0	595	(595)
Sindh	Fitter (Press)	0	556	(556)
Sindh	Baker	0	525	(525)
Sindh	Power Room operator	0	490	(490)
Sindh	Weaving Operator	0	490	(490)
Sindh	Auto Mechanic	592	455	137
Sindh	Spray painter	0	455	(455)
Sindh	Wood Working	456	450	6
Sindh	Pharmacist	0	426	(426)
Sindh	RTV Electronics	720	423	297
Sindh	Civil Draftsman	717	420	297
Sindh	Injection molder	0	420	(420)
Sindh	Civil Surveyor	856	415	441
Sindh	Pattern making	0	385	(385)
Sindh	DIT	738	358	380
Sindh	Textile Designing	0	350	(350)
Sindh	Computer Language	600	341	259
Sindh	Carpenter	433	340	93
Sindh	Hand & Machine Embroidery	392	315	77
Sindh	Bulldozer operator	0	315	(315)
Sindh	Customer Agent	0	307	(307)
Sindh	Injection Blow	0	275	(275)
Sindh	Professional IT	1081	270	811
Sindh	Kitchen Helper	0	250	(250)
Sindh	Mix machine operator	0	250	(250)
Sindh	Fitter (Pipe)	0	246	(246)
Sindh	Dress Making & Designing	632	245	387
Sindh	Overlook stitcher	0	245	(245)
Sindh	Ref: / AC	946	240	706
Sindh	General Electrician	309	214	95
Sindh	Textile Spinning	0	204	(204)

Province	Trade	Supply	Demand	Gaps
Sindh	Mason (Plaster)	0	175	(175)
Sindh	Molder	0	175	(175)
Sindh	Pattern cutting	0	175	(175)
Sindh	Rice Mill Technician	0	175	(175)
Sindh	Mobile Repairing	20	170	(150)
Sindh	Cabinet Making	173	167	6
Sindh	Store keeper	0	150	(150)
Sindh	Computer Networking	894	145	749
Sindh	Cutting Special/Cutting Sewing Normal	262	145	117
Sindh	General Machinist	125	140	(15)
Sindh	Glazier	0	140	(140)
Sindh	Hostess	0	140	(140)
Sindh	Advance Diploma Information Technology	923	136	787
Sindh	Receptionist	0	135	(135)
Sindh	Machine Embroidery	726	130	596
Sindh	Computer Hardware	480	125	355
Sindh	Auto Electrician	99	123	(24)
Sindh	Wiremen	155	121	34
Sindh	Fabricator	0	106	(106)
Sindh	Motor winding	79	105	(26)
Sindh	CNG Installer	0	105	(105)
Sindh	Dumper Operator	0	105	(105)
Sindh	Excavator operator	0	105	(105)
Sindh	Generator Mechanic	0	105	(105)
Sindh	Reeling machine operator	0	105	(105)
Sindh	Tractor Mechanic	246	96	150
Sindh	Industrial Electronics	219	78	141
Sindh	AutoCAD	2493	70	2,423
Sindh	Arch & Interior	155	70	85
Sindh	Lab Technician	38	70	(32)
Sindh	Air Compressor	0	70	(70)
Sindh	Compressor machine Operator	0	70	(70)
Sindh	Cutting Master	0	70	(70)
Sindh	Lifte operator	0	70	(70)
Sindh	Knitting	349	57	292
Sindh	Oracle DBA	689	49	640
Sindh	Electronics	635	45	590
Sindh	Fashion Designing	1100	35	1,065

Province	Trade	Supply	Demand	Gaps
Sindh	Mechanical Drafting	133	35	98
Sindh	Butcher	0	35	(35)
Sindh	Dry Cleaner	0	35	(35)
Sindh	Bio-Medical	212	24	188
Sindh	Business Administration (DBA)	252	11	241
Sindh	B.ED	247	0	247
Sindh	Beautician	2360	0	2,360
Sindh	Office Administration	692	0	692
Sindh	Office Automation	647	0	647
Sindh	Montessori Training	645	0	645
Sindh	Technical School Certificate	374	0	374
Sindh	I.P.C	202	0	202
Sindh	Steganography	157	0	157
Sindh	M/ Shop Group	117	0	117
Sindh	Secretarial skill	69	0	69
Sindh	Drawing & Arts	62	0	62
Sindh	Glass work	45	0	45
Sindh	Textile management& marketing	41	0	41
Sindh	Business IT	39	0	39
Sindh	Typing	38	0	38
Sindh	DOM	21	0	21

ANNEX 2: QUESTIONNAIRE

1. Skills Workforce Demand Side Questionnaires

This information supplied on this format will be kept strictly confidential and will be used for research & Planning of National Skills Information System, NAVTTC, Government of Pakistan

Name of Establishment: _____
 Address of Establishment: _____
 Website of Establishment (if any) _____ District Name: _____
 Name and Designation of Respondent: _____
 Contact No of Respondent: _____ Email Address of Respondent: _____
 Interview Date (DD/MM/YYYY): _____ Major Activity/Business _____

2. Existing Skilled Workers (Only skilled workers)

S.No.	Technical Trade Name	Trade Code (For Office Use)	No. of workers					Level (See below codes)	Total
			TVET Graduate	Work Based Learner	Informal Sector	Others			
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Level codes: 1- Certificate, 2: Diploma, 3= DAE, 4: B. tech, 77- Others

Specify Other Suppliers/Sources (if any) _____

3. Skills deficiencies

3.1: Do you face skilled workforce deficiencies? 1= Yes 2= No (Go to Section 3)

S.No.	Technical Trade Name	Trade Code (For Office Use)	No. of workers					Level (See below codes)	Total
			TVET Graduate	Work Based Learner	Informal Sector	Others			
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Level codes: 1- Certificate, 2: Diploma, 3= DAE, 4: B. tech, 77- Others

Specify Other Suppliers/Sources (if any) _____

4. Future Skills requirement

S.No.	Technical Trade Name	Trade Code (For Office Use)	No. of workers					Level (See below codes)	Total
			TVET Graduate	Work Based Learner	Informal Sector	Others			
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Level codes: 1- Certificate, 2: Diploma, 3= DAE, 4: B. tech, 77- Others

Specify Other Suppliers/Sources (if any) _____

4.1: What is your level of satisfaction from the TVET graduates (if any)?


1= Satisfied, 2= Not Satisfied, 3=Don't Know

4.2: What are your Suggestions for improvements in skilled workforce?

- A) _____
- B) _____
- C) _____
- D) _____
- E) _____

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