



SKILLS NEEDS ASSESSMENT FOR THE CONSTRUCTION INDUSTRY

Report of a stakeholders’ consultative workshop on skills needs, targets, industry contribution and other key issues related to vocational education and training for the construction industry in the Punjab.

Punjab Skills Development Fund (PSDF)

In collaboration with
Constructors Association of Pakistan (CAP)

ACKNOWLEDGEMENTS

PUNJAB SKILLS DEVELOPMENT FUND WOULD LIKE TO THANK THE OFFICE HOLDERS AND MEMBERS OF CONSTRUCTORS ASSOCIATION OF PAKISTAN (CAP) FOR THEIR SUPPORT IN ORGANIZING THIS INDUSTRY CONSULTATION. PSDF WOULD LIKE TO THANK MR. AFZAL-UR-RAHMAN, CHAIRMAN OF CAP AND MR. AYUB SABIR IZHAR, SENIOR VICE CHAIRMAN OF CAP FOR THEIR PARTICIPATION AND SPEECHES IN THE WORKSHOP. THIS WORKSHOP WAS MADE POSSIBLE THROUGH FUNDS PROVIDED BY THE DEPARTMENT FOR INTERNATIONAL DEVELOPMENT (DFID), UK UNDER THE TECHNICAL ASSISTANCE COMPONENT OF PUNJAB ECONOMIC OPPORTUNITIES PROGRAMME (PEOP) AND THE EXCELLENT MANAGEMENT TEAM OF PSDF. PSDF RESERVES THE MORAL RIGHTS FOR THIS PUBLICATION.

1	Introduction
3	Workshop on Skills Needs Assessment for the Construction Sector
4	Opening Session
7	Findings of the Survey
22	Breakout Sessions (Focus Group Discussions)
24	Breakout Session on Skills Needs in Structural Finish Sub-Sector
25	Growth Potential
26	New Trends and Technologies
26	Most Needed Skills
26	Skills Training Target
26	Successful Past Examples
27	International Assistance in Training
27	Role of CAP
27	Other suggestions
28	Breakout Session on Skills Needs in Architectural Finish and Construction Services Sub-Sectors
29	Growth Potential
30	New Trends and Technologies
30	Most Needed Skills
31	Skills Training Target
31	Successful Past Examples
31	International Assistance in Training
31	Role of CAP
32	Other Suggestions
33	Conclusion - Analysis and the Way Forward
37	Annexure 1 – Survey Questionnaire
45	Annexure 2 –List of Focus Group Participants (Breakout Sessions)
46	Gallery-Glimpses of the Workshop

LIST OF DIAGRAMS

Diagram 1 – Five-Step Training Cycle	3
--------------------------------------	---

LIST OF FIGURES

Figure 1 – Sub-sectoral Representation of Companies (%)	9
Figure 2 – Size Distribution of Companies	9
Figure 3 – Permanent versus Casual Employment Trends	9
Figure 3a – Size Distribution of Companies by Total Number of Employees (%)	10
Figure 4 - Outsourcing Status of Companies	10
Figure 5 - Key Outsourced Components (No. of Companies %)	11
Figure 6 – Key Reasons for Outsourcing	11
Figure 7 - Recruitment Methods in Companies	11
Figure 8 – Job Screening Methods of Applicants (%)	12
Figure 9 - Percentage of Companies Hiring Middle Management Level Employees with Certain Qualifications	12
Figure 10 – Percentage of Companies Hiring Worker Level Employees with Certain Qualifications	12
Figure 11 – Training Status of Existing Employees of the Companies (%)	12
Figure 12 – Status of Information about Entry Level TVET Courses	13
Figure 13 – Status of Poor Job Preparedness of TVET Qualification Holders	13
Figure 14 – Key Reasons for Poor Job Preparedness of the Existing Employees who possessed TVET Qualification (%)	13
Figure 15 –Employees Hiring Status of Companies at Middle Management Level – Last Year (%) Status of Companies Worker Level – Last Year (%)	14
Figure 15 (a) –Employees Hiring Status of Companies Worker Level – Last Year (%)	14
Figure 16 – List of Hard to Fill Jobs at Middle Management Level (%)	15
Figure 17 – List of Hard to Fill Jobs at Worker Level (%)	15

Figure 18 – Key Reasons for Hard to Fill Jobs (No. of Companies in %)	16
Figure 19 – List of Additional Skills Required by the Companies (%)	17
Figure 20 – Companies Preference for Training Institute(s)	18
Figure 21- Status of Information Availability of TVET Courses to Companies	18
Figure 21a – Method of Information for TVET Courses (%)	18
Figure 22 – Status of Provision of In-house Training	19
Figure 23 – Type of In-house Training (%)	19
Figure 24 – Willingness of Companies to Relieve Workers for Out of the Company Training (%)	19
Figure 25 – Preference of Duration for out of the Company Training (No. of Companies in %) .	19

LIST OF TABLES

Table 1 – List of Occupations that Severely Lack Technical Skills	16
Table 2 - Suggested Training Courses	17
Table 3 – List of Trainings for Un-employed People	20
Table 4 – Training Demand	21
Table 5 – Details of New Trades	21

LIST OF ACRONYMS

CAP	Constructors Association of Pakistan
CEO	Chief Executive Officer
CTTI	Construction Technology Training Institute
DAE	Diploma of Associate Engineer
DFID	Department for International Development, UK
NAV TTC	National Vocational and Technical Training Commission
NTB	National Training Bureau
PBTE	Punjab Board of Technical Education
PEOP	Punjab Economic Opportunity Programme
PSDF	Punjab Skills Development Fund
PVTC	Punjab Vocational Training Council
TEVTA	Technical Education and Vocational Training Authority
TVET	Technical Vocational Education and Training

INTRODUCTION

This report presents the findings of a skills needs assessment workshop for the construction sector of the Punjab, held on 28th November 2013 at Lahore, Pakistan. The workshop was organized by Punjab Skills Development Fund (PSDF) in collaboration with Constructors Association of Pakistan (CAP). The focus of the workshop was to assess the current and future skills needs of the construction sector of the Punjab in order to develop an action plan for a need-based skills development program.

This report has three sections: The first section provides a brief introduction of PSDF and the Construction Sector of Pakistan along with rationale for the workshop. The second section provides findings of the workshop comprised of a survey and two breakout sessions (Focus Group Discussions). The last section concludes the report by providing an analysis of the findings along with a way forward.

organizations. After success in its pilot phase districts of Bahawalpur, Bahawalnagar, Muzaffargarh and Lodhran, PSDF is now poised to serve ten additional districts of Punjab namely: Lahore, Gujranwala, Sargodha, Faisalabad, Sheikhupura, Chiniot, Rahim Yar Khan, Vehari, Khanewal and Sialkot. For its expansion phase, PSDF management has decided to adopt a sector-based approach and serve the skills needs of the important and significant sectors of the economy. Construction sector is one of the important sectors of Pakistan's economy and has been selected for this intervention.

The construction industry/sector¹ plays a vital role in the socio-economic development of a country. The activities of the industry have great significance towards achieving the national development goals through the provision of infrastructure. The construction industry generates substantial employment and provides growth to other sectors such as sanitary, electronics, cement, steel, paints, furniture, and marble. This industry supports investment and growth climate and helps reduce poverty by generating income opportunities for poor households. According to the Economic Survey of Pakistan (2012-13)², the construction sector contributed 2.3 percent to Pakistan's GDP (Gross Domestic Product), shown 5.2 percent annual growth and employed 5.5 percent of the total employed labour force.

Keeping in mind the significance of the contribution of the construction sector to Pakistan's economy and provision of employment, PSDF decided to forge collaboration with the construction industry of Pakistan to assess its skills needs for the current and future and to devise an action plan for the skills development programme. Therefore, this workshop was the first step towards this collaboration aiming to develop a need-based skilled workforce for the construction sector of Pakistan.

Punjab Skills Development Fund is a not-for-profit company set up under the Companies Ordinance 1984 by the Government of the Punjab in collaboration with the Department for International Development (DFID) UK. PSDF aims to provide skills and vocational training opportunities to the poor and vulnerable populations of the fourteen poorest districts of the Punjab for improving their ability to find work or progress in their current employment or develop an enterprise. The Company is governed by a private sector led Board of Directors and management team.

To achieve its vision, PSDF aims to introduce different products for skills development in the target districts. Its cross-cutting strategy is to promote competition in skills training market. The training services procured through a competitive process will be focused on imparting skills which respond to the needs of the labour market. The funding and incentive structures shall ensure responsiveness from private, public and not-for-profit training providers.

PSDF functions as a training fund to finance skills development services offered by government, non-government and private sector skills development institutes/

1 - The terms 'industry' and 'sector(s)' will be used interchangeably in this report.

2 - Pakistan Economic Survey 2012-13, Ministry of Finance

WORKSHOP ON SKILLS NEEDS ASSESSMENT FOR THE CONSTRUCTION SECTOR

The skills needs assessment workshop of the Construction Sector was consisted of a plenary session, a survey and two breakout sessions namely: Structural Finish; and Architectural Finish and Construction Services. The focus of the workshop remained at the middle management (supervisory staff) and worker level (masons, plumbers etc.) employees in alignment with the PSDF's target domain. This workshop was organized in collaboration with Constructors Association of Pakistan (CAP). A good mix of small, medium and large companies was present in the workshop to assess the skills needs of the construction sector.

This workshop serves as a starting point in a five step training cycle (see Diagram 1) aiming to develop an action plan to address the skills needs of the construction sector.

a sense of ownership among the key stakeholders for a skills development intervention. PSDF mainly engages employers in the process to perform the following six tasks.

1. **Identify what skills are currently needed and what new skills requirements may be anticipated in future**
2. **Provide an estimate of the target number of trainees for the initiative in the short and long term**
3. **Provide feedback for development of suitable curricula**
4. **Develop linkages with training institutes for training, assessment and job matching**
5. **Act as trainers of on-the-job training and offer jobs to the trainees and share feedback on their quality**

Employers' approval of the action plan developed through this consultation will be critical for the success of PSDF's initiative and will require their full participation and support in its implementation. In the next section, the proceedings of the workshop will be discussed.



PSDF gives key importance to the engagement of multiple stakeholders such as employers, training providers and curriculum development agencies in the task of skills development. This engagement aims to inculcate

OPENING SESSION

The workshop started with recitation of the Holy Quran. The first session was presided by Mr. Afzal-ur-Rahman (Chairman of CAP). Mr. Ali Sarfraz, Chief Executive Officer (CEO) of PSDF welcomed the workshop participants and appreciated their participation in the workshop. He gave an overview of PSDF by focusing on its target areas, strategy, achievements and future plans. He also highlighted the financial support of DFID for PSDF. He described that PSDF follows an evidence based operational model.

He further explained that the research is hallmark of PSDF approach, hence it conducts baseline surveys and research studies to design its interventions based upon evidence. He told the participants that according to a baseline household survey carried out by the Centre for Economic Research in Pakistan (CERP), half of the males and 68 percent females have no job-specific skills and vocational training and the job opportunities for the poor are very limited. Therefore, he emphasized the need to equip this large segment of the society with need-based skills in order to ensure their employability in the market.

He told that DFID has provided a funding of £55 million under the Punjab Economic Opportunities Programme (PEOP) to improve the income levels of poor households in Punjab. PEOP has three key components namely: 1) Skills Development, 2) Livestock and Dairy, and, 3) Technical Cooperation. PSDF received the mandate to carry out the first component (skills development) in the Punjab. PSDF aims to improve income generation opportunities for poor and vulnerable population in selected districts of the Punjab by enabling skills development through promotion of a competitive skills training market.

Further, he told the participants that so far, PSDF has had more than 20,000 individuals trained in addition to developing their database. He told the audience that PSDF follows a competitive process for the award of training contracts to training providers. Training programmes are advertised, following which, potential training providers bid for the projects. After a rigorous process of screening and evaluation, contracts are awarded on merit.

The CEO explained that PSDF has a target to train 135,000 individuals with 40 percent women in its target districts. To achieve its objectives, PSDF has launched three schemes namely, Skills for Market, Skills for Job, and Skills for Farm, in its target districts. He said that purpose of these schemes was to impart skills to unskilled workforce and to improve their employability in the market. To achieve this purpose, PSDF works with multiple stakeholders, especially employers or job-providing agencies.

The trainees are provided a stipend during their training programmes and in the case of an out-of-city event, boarding and lodging are also paid by PSDF. To ensure quality of a training programme, third-party monitoring is carried out. In summary, he shared that PSDF is following an effective, transparent and innovative approach which aims to improve income-generation of poor households in its target areas through the provision of need-based and employable skills. At the end, he shared PSDF's intentions to forge a partnership with CAP in order to design and deliver construction-sector need-based skills training programmes in its target areas.

The next speaker was Mr. Ayub Sabir Izhar, Senior Vice Chairman of CAP. He highlighted the role of the construction sector in the economic development of Pakistan by focusing at two key factors namely, provision of investment opportunities and employment. He quoted figures from the Economic Survey of Pakistan (2012-13) and told the workshop participants that the construction sector has made 2.3 percent contribution to the GDP of Pakistan. He explained that the construction sector employs approximately 5.5 percent of the total employed labour force in Pakistan.

He was optimistic about the commencement of public sector mega-projects such as Prime Minister's low-income housing scheme, dams, and other infrastructure projects. As a result, he was expecting a huge demand for the construction sector skilled workforce. He showed

the willingness of CAP to forge a partnership with PSDF to meet the skills needs of the construction sector of Pakistan. The last speaker was Mr. Afzal-ur-Rahman, Chairman of CAP. He appreciated the PSDF's initiative of this workshop and showed their willingness to extend maximum cooperation towards the initiative. He told the participants that annually the construction sector of Pakistan is suffering huge losses (in billions of Rupees) mainly due to wastage of construction material and low quality of work. The key reason for the wastage was identified

as the non-availability of a highly skilled workforce. He was of the view that if PSDF's initiative goes ahead, the construction sector will be a major beneficiary owing to the reduction in construction-related losses. He showed CAP's willingness to provide resources such as training facilities for on-the-job trainings and on-site residence for trainees. At the end, he appreciated PSDF's workshop and the active participation of construction companies in the workshop.



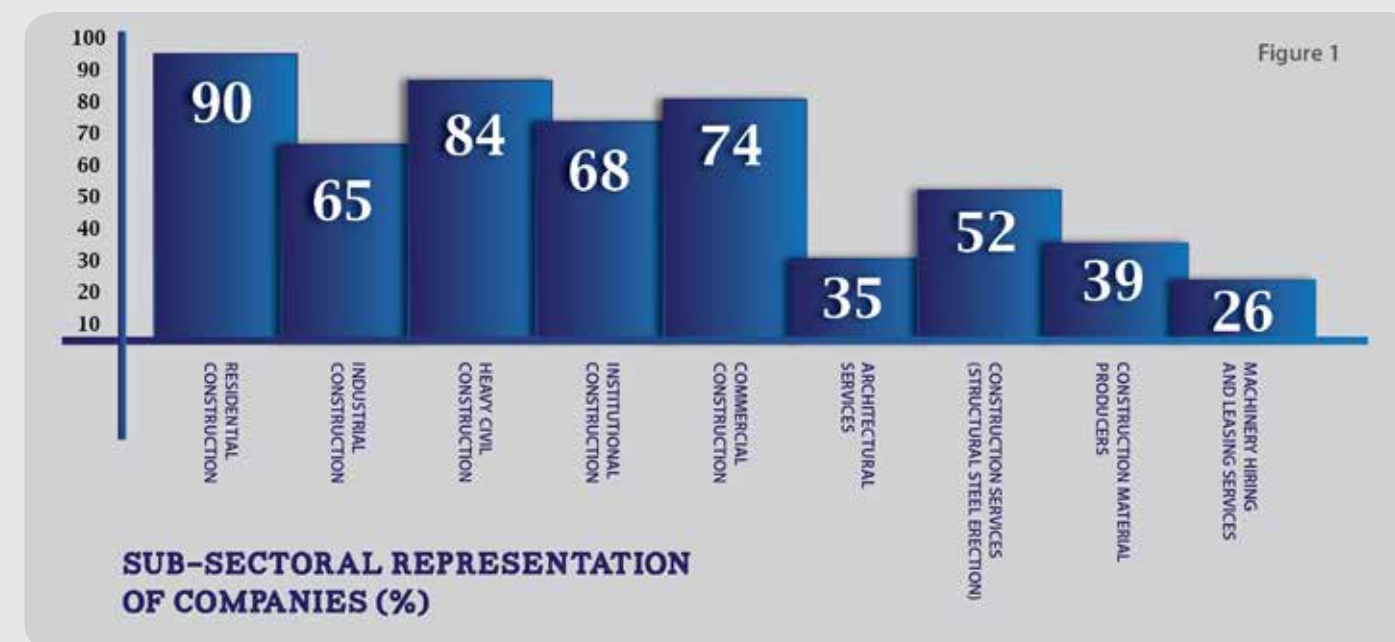
FINDINGS OF THE SURVEY

These findings of this report are based upon 44 questionnaires filled by 31 construction companies. 23 questionnaires were filled by 18 participating companies in the workshop. Later on, PSDF staff had filled 21 questionnaires from 13 companies that were not able to attend the workshop. Numbers in the figures are mentioned in percentage values.

Questions 24-28 were aimed to get information about preference for training providers, information about TVET courses, and provision of in-house training to new employees, possibilities for the provision of on-the-job training to unemployed people including types of skills trainings and number of people to be trained in construction sector companies. The last Question 29 was aimed to get construction sector companies training demand in different trades along with their preferred training duration, suggestions for new course development and ranking of TVET course development and testing agencies.

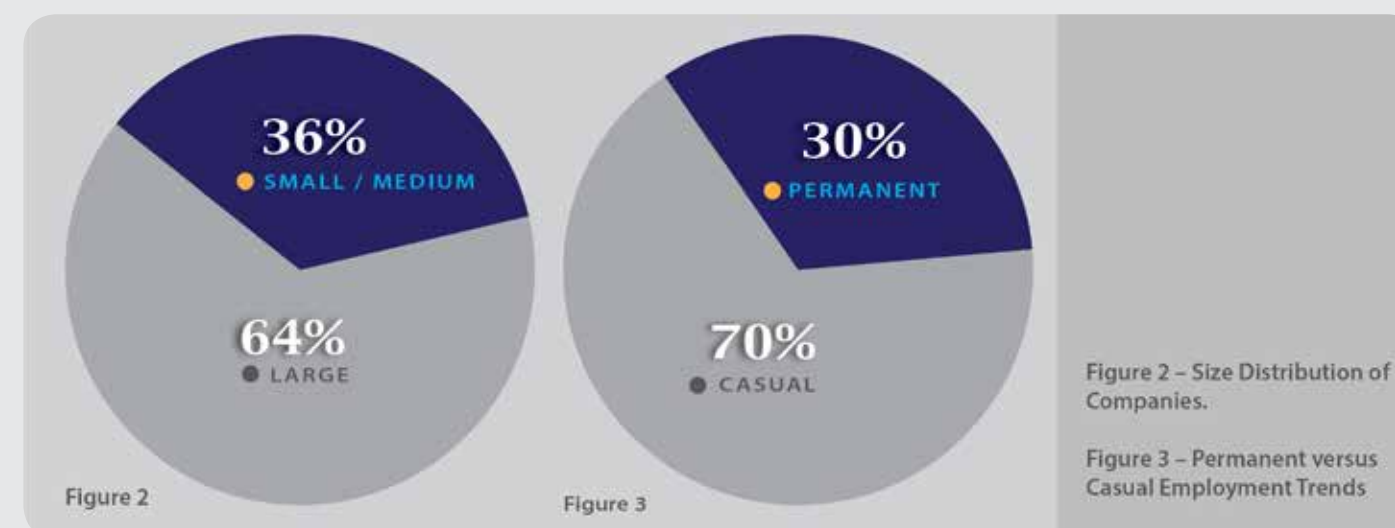
Questions 24-28 were aimed to get information about preference for training providers, information about TVET courses, and provision of in-house training to new employees, possibilities for the provision of on-the-job training to unemployed people including types of skills trainings and number of people to be trained in construction sector companies. The last Question 29 was aimed to get construction sector companies training demand in different trades along with their preferred training duration, suggestions for new course development and ranking of TVET course development and testing agencies.

A structured questionnaire was used to collect data about construction-sector skills needs. The questionnaire comprised 29 questions (see Annexure 1). It contained a combination of multiple-choice questions and, yes/no questions. The first five questions solicited personal information from the respondent such as their name, designation, and company information. Questions 6-10 were about the participating companies' profiles such as nature of business, company size, number and type of different departments within their company, and outsourcing of construction work (if any). Questions 11-13 were focused at employees' recruitment and selection methods, titles of employees and nature of academic qualifications. Questions 14-23 were focused on existing training status of employees, information about TVET (Technical and Vocational Education and Training) courses or institutes, skills deficiencies in the existing TVET qualifications, recruitment patterns, hard-to-fill jobs along with reasons, available vacant positions and salary range.



There was a good sectoral representation of the construction sector companies in this survey. Figure 1 shows that 90 percent participating companies were engaged in residential construction, 84 percent companies were representing heavy civil construction, 74 percent were engaged in commercial construction, 68 and 65 percent were from the institutional and industrial construction sectors respectively. In fact³, majority of the companies were engaged in more than three sub-sectors, i.e. residential, heavy civil construction, industrial and commercial construction. Relatively there were a small number of companies that were representing construction services; construction material; and construction machinery hiring and leasing services (see Figure 1).

There was a good mix of old and new construction companies in the survey. For example, some of the participating companies had been working in the construction sector of Pakistan since 1950s and some were established as recently as 2010. The majority of the companies (62%) were established in between 70s to 90s. Further, 64 percent participating companies (see Figure 2) were large-size companies (a large size company has an annual turnover of more than 250 million Rupees as per the benchmark set by the Small and Medium Enterprise Development Authority – SMEDA). 36 percent were small and medium-sized companies (according to the definitions given by SMEDA, a company is a small and medium enterprise if it has an annual turnover of less than 250 million Rupees).



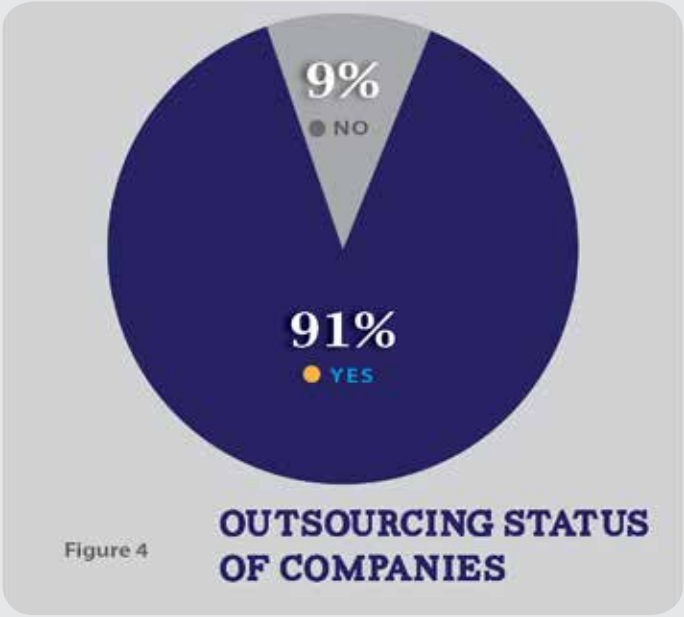
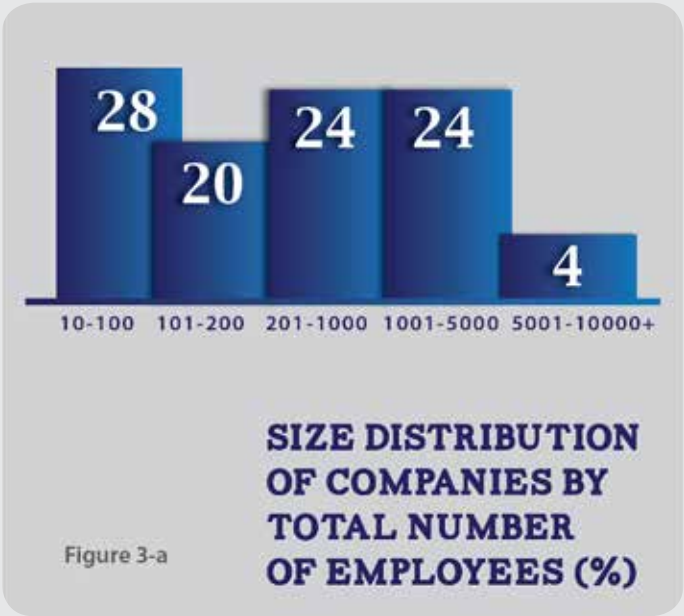
³ - The companies were given the option to tick more than one sub-sector in question number six. Therefore, each bar shows percentage value out of 100.

These companies⁴ had employed two types of employees i.e. permanent and casual. The permanent employees comprised 30 percent of the total employment in the participating companies. In contrast, 70 percent employees were casual (see Figure 3). One possible reason for the higher number of casual employees was that they were employed on construction projects and some companies were managing multiple projects. Therefore, the number of casual workers was higher than the permanent workers. Figure 3a shows that 48 percent of the companies had total number of employees in the ranges of 10–100 and 101–200. An equal number of companies (48%) had employees in the ranges of 20–1000 and 1001–5000. Only four percent companies had the number of employees in the range of 5001–10,000+. The salary for middle-management employees ranged from PKR 8000 to 150,000 per month. In contrast, the salary for the worker-level employees ranged from PKR 450 to 1500 per day. Both salary ranges covered different levels of qualifications and skills in the construction sector. In contrast, one respondent reported that in Saudi Arabia the salary range was 10,000–20,000 Saudi Riyals and 750–2500 Saudi Riyals per month for middle-management and worker-levels employees respectively.

The data shows that the majority of the companies (90%) had the following eight major departments: engineering, electrical, architectural design, structural work, plumbing, shuttering, accounts, administration, and human resources. Only two percent of the companies had research and development department. This shows that the majority of the construction companies were paying less attention to the research and development in their sector.

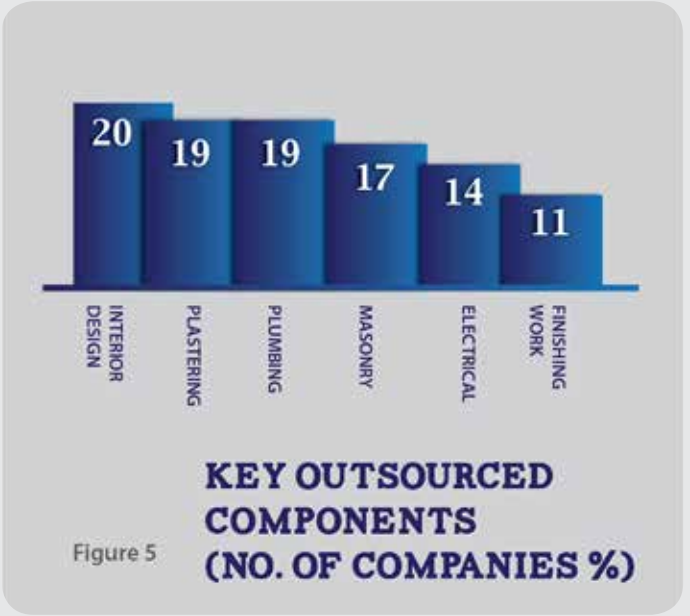
It was interesting to note that 91 percent of the companies were outsourcing some components of their work to third parties (see Figures 4 & 5). The key components outsourced included interior design (20%), plastering (19%), plumbing (19%), and masonry (17%). Eleven percent of the companies were also outsourcing finishing work due to the specialised nature of the work. This issue

was also raised in the break-out sessions that followed the administration of this survey. The discussions determined that, since some clients from larger cities expect high-quality construction finishing, the area is gradually developing a specialised skilled workforce. It is therefore safe to conclude that in the future, the demand for specialised and skilled workforce will continue to increase.



4 - 25 out of 31 companies answered question 8 A & B.

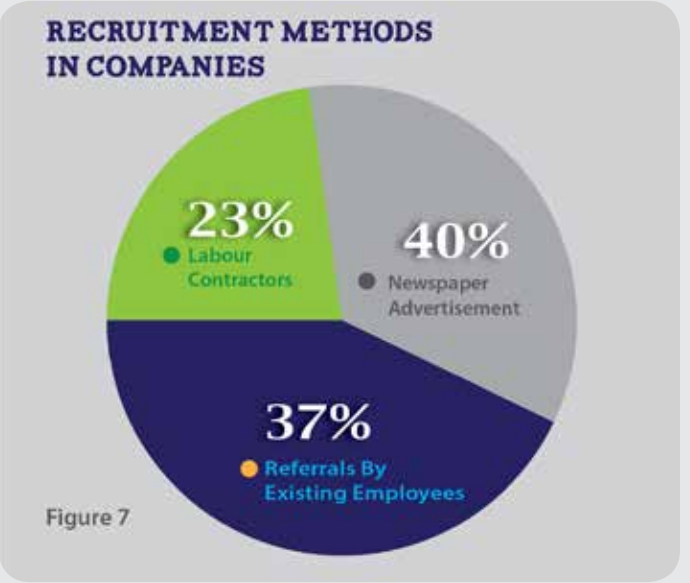
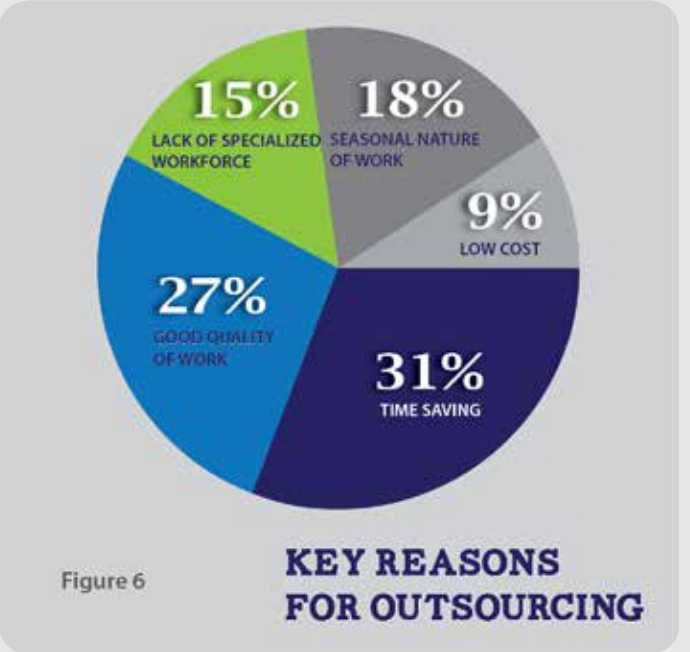
Figure 6 highlights two fundamental reasons for the escalation in the trend of outsourcing in the construction sector: time-saving (31%) and good quality of work (27%). The companies were of the view that it saved time to outsource some components of construction work because third parties already possess specialised workforce which ensures superior quality of the work in question. As evidenced by the findings of this survey,



it is noteworthy that the majority of the companies did not outsource work to save money because only 9 percent of the companies selected 'cost-saving' as a reason for outsourcing. The companies focused mainly on saving time as well as obtaining high quality of work. This trend shows that the obtainability of skilled or specialised labour governs companies' outsourcing decisions.

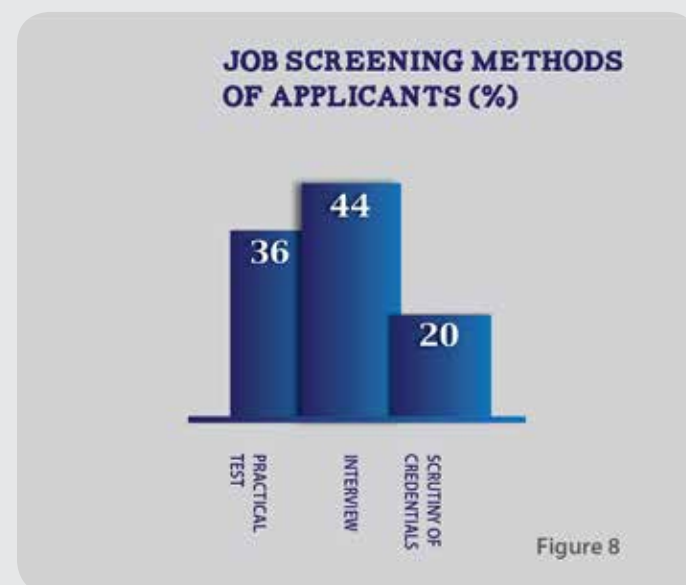
Figure 7 depicts the most commonly-used recruitment and selection methods employed by the construction companies. In this survey, newspaper advertisements and referrals by existing employees stood out as the two most widespread methods to recruit new employees. Companies mostly used a combination of these methods to ensure effective recruitment. One company had developed an in-house database of applicants which was being used on need-basis. Further, the majority of the companies used interviews (44%) and practical test (36%) as the two chief methods for the selection of new employees (see Figure 8). Two companies mentioned that they required applicants to present their work experience certificates.

The respondents listed three frequently-used job titles for middle-management level, and seven for worker-level employees. For the middle management level, the most frequently used job titles include Foreman, Supervisor and Surveyor. In the case of workers, the key job titles include Mason, Carpenter, Electrician, Plumber, Steel Fixer, Scaffolder and Helpers.

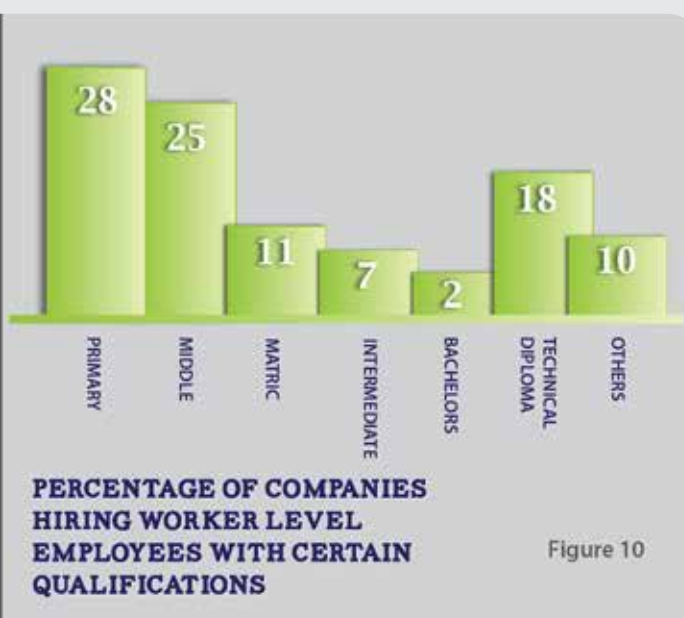
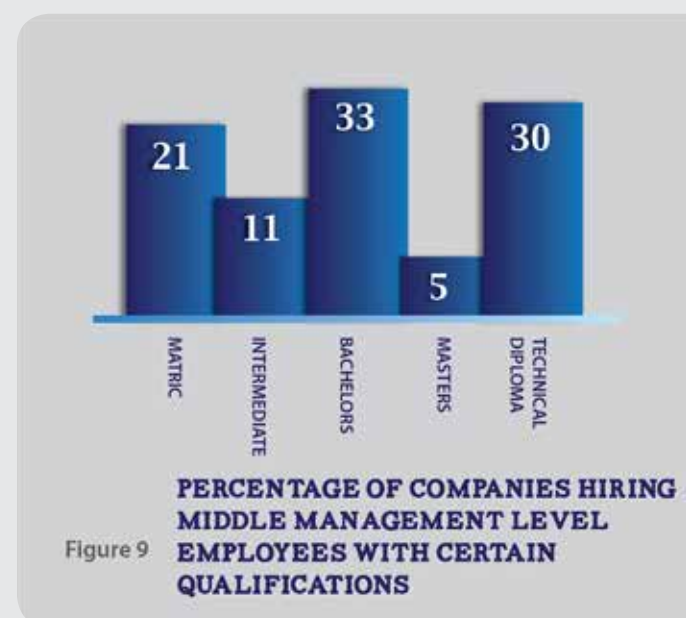


This paragraph will provide an overview of the findings regarding the employees' academic qualification required by construction-sector companies. The majority of companies required Bachelors-level education (33%) and technical diplomas (30%) for middle-management employees (see Figure 9). In contrast, for worker-level employees, most of the companies required at least primary-level education (29%) as depicted by Figure 10.

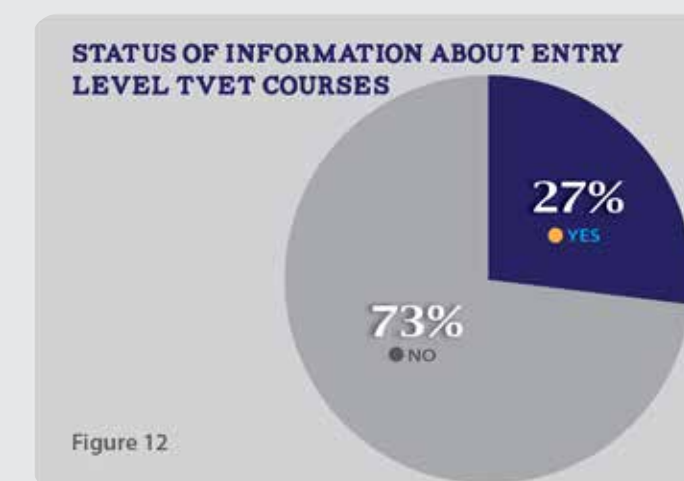
Some companies required technical diploma (18%) and 10 percent required other qualifications. In summary, the data indicates that the construction sector companies require at least certain level of educational qualification in alignment with the requirements of the job in question.



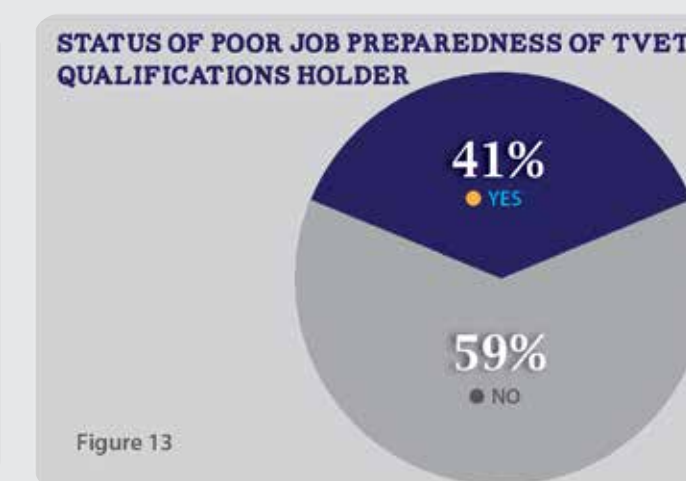
The next question attempted to gather information regarding the training status of the existing employees of the participating companies. A summary of the responses is shown in Figure 11. The comparison portrays that a higher number of middle-management employees (19%) were trained at Technical and Vocational Training (TVET) institutes, compared to the worker-level employees (6%) in the construction companies. In contrast, a higher number of worker-level employees (30%) were trained on-the-job. Further, the companies used a combination of both methods with a minor difference. It is indicated in the findings that some companies use neither TVET nor on-the-job methods for training their employees. This finding shows that there was a significant number of both levels of employees (31% middle management) and (38% worker level) that were not provided any sort of training.



The findings of this survey showed that 73 percent of the companies were not aware of any entry-level TVET courses being offered in Pakistan (see Figure 12). From this alarming finding we can conclude that a sizable communication gap exists between the construction companies and the TVET institutes. This area begs immediate attention of the leadership of both the construction-sector companies and the TVET institutes, such as the Technical Education and Vocational Training Authority (TEVTA), and the Punjab Vocational Training Council (PVTC), among others. Only 27 percent companies were aware of entry-level TVET courses being offered by the TVET institutes. The 27 percent respondents who answered this question were aware of only the following TVET courses: Plumbing, Electrician, Welding, Quantity Surveyor, Steel Fixer, Mason, Shuttering Carpenter, DAE (Civil), Draftsman and AutoCAD.

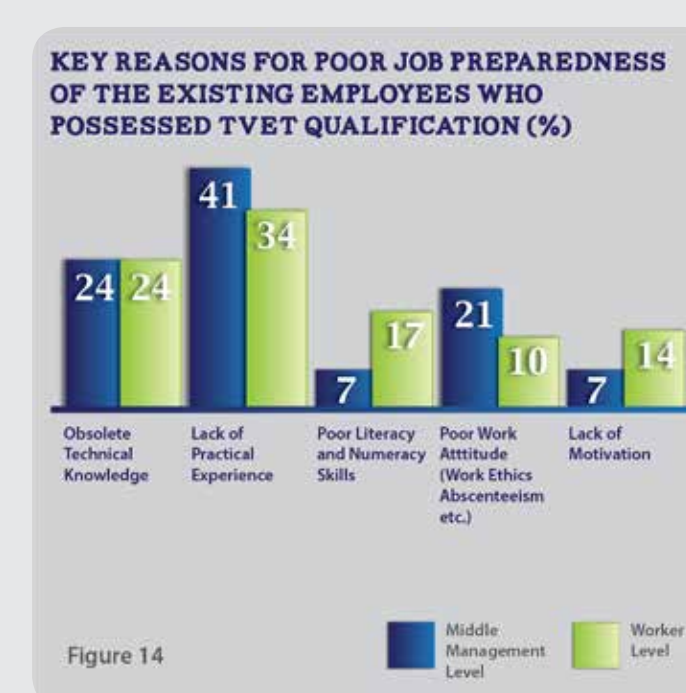


findings showed that both levels of employees (41% middle-management and 34% workers) lack practical experience. It indicates that the TVET qualification holders should be provided on-the-job training while they are enrolled in a TVET institute. Thirdly, it was mentioned that 17 percent of worker-level employees had poor literacy and numeracy skills. This reflects that there is a need to train worker-level employees in the said areas to improve their performance. It was also mentioned that 21 percent of management-level employees have poor work attitude compared to 10 percent worker-level employees. This shows that there is a greater need of work attitude management training for middle-management employees. The survey also showed that worker-level employees have a lack of motivation towards their jobs. This requires more thorough investigation in order to address the complexity of the matter.



The next question attempted to find out whether existing employees who possessed TVET qualification(s) were poorly prepared for their jobs. Figure 13 shows that 59 percent respondents said that the TVET qualification holders were not poorly prepared for their jobs. From this we may conclude that they were satisfied with the quality of TVET qualification holders. In contrast, 41 percent respondents were convinced that the TVET qualification holders were poorly prepared for their jobs.

Figure 14 compares both levels of employees on five dimensions for poor job preparedness: Firstly, both levels of employees were considered to possess obsolete technical knowledge (24%). It shows that there is a need to upgrade the curricula of TVET courses. Secondly, the



In order to examine the recruitment patterns in the construction sector, the participants were asked to share details of their recruitments against replacements⁵ and new jobs⁶ over the last one year. Figure 15 shows that 47 percent of the 15 companies who responded to this question hired new employees at the middle-management level, 7 percent companies made replacements and, 47 percent companies made both types of recruitments. In summary, at the middle-management level, a total of 595 appointments were made out of which 203 were made as replacements and 392 were made against new jobs. The highest numbers of appointments were made against supervisors (443) and surveyors (74).

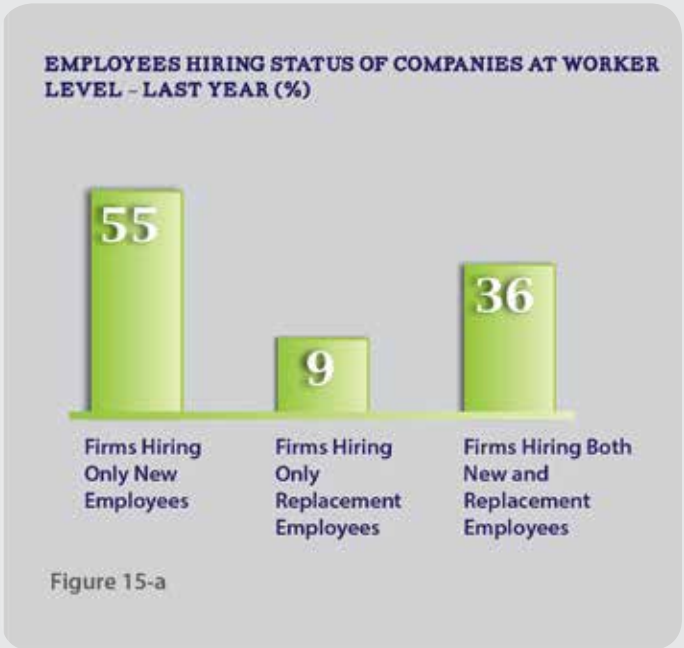
It also shows that in both of these job types, the replacement trend was higher. This indicates that the retention-level against these two jobs was very low in the participating construction sector companies.

Figure 15a shows that 55 percent companies out of 11 companies who responded to this question hired new employees at the worker level, 9 percent made replacements and 36 percent companies made both types of recruitments. In terms of numbers, at the worker-level, 454 appointments were made out of which 184 were against replacements and 270 were against new jobs. The highest number of appointments (346) was made against masons; out of which 174 were replacements and 172 were new jobs. It indicates that the demand for masons was very high during last year and the industry may face shortages of masons in the future if this trend continues.

The next question attempted to find out how many vacant positions for both levels of employees were available in the participating companies. Only 23 percent companies (7 out of 31 companies) answered this question. At the middle-management level, 212 vacant positions were available out of which 196 positions were vacant for supervisors, 11 for surveyors, one for 3D visualiser and two each for draftsmen and health and safety supervisors.

In contrast, at the worker-level, 255 vacant positions were available out of which 194 positions were vacant for masons, 20 for tile fixers, 30 for steel fixers, five for

plumbers, three each for carpenter and painter. The highest number of vacant positions for masons validates the trend observed in the last question that shows that highest number of appointments (346) in the workers' category was made against masonry positions.

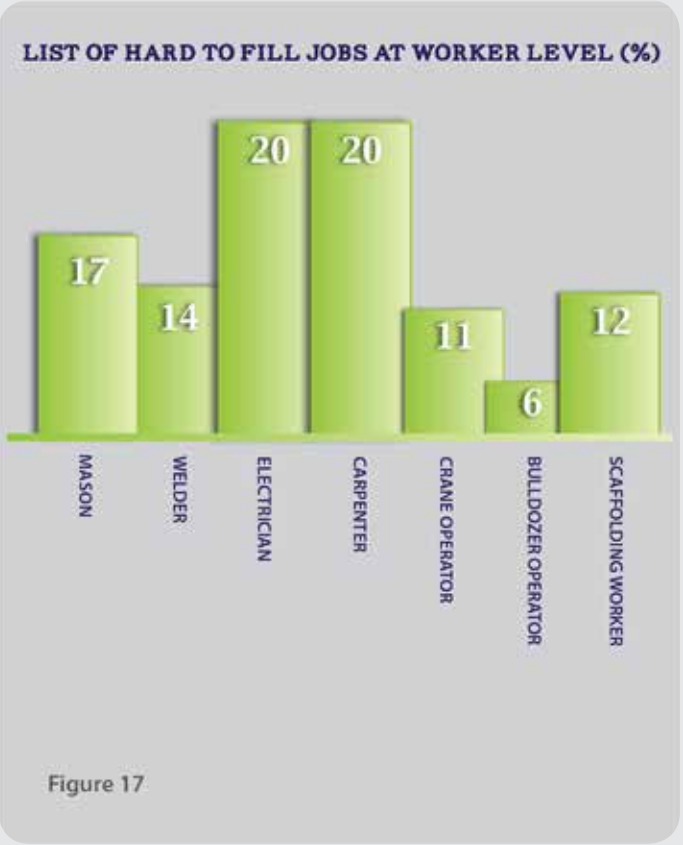
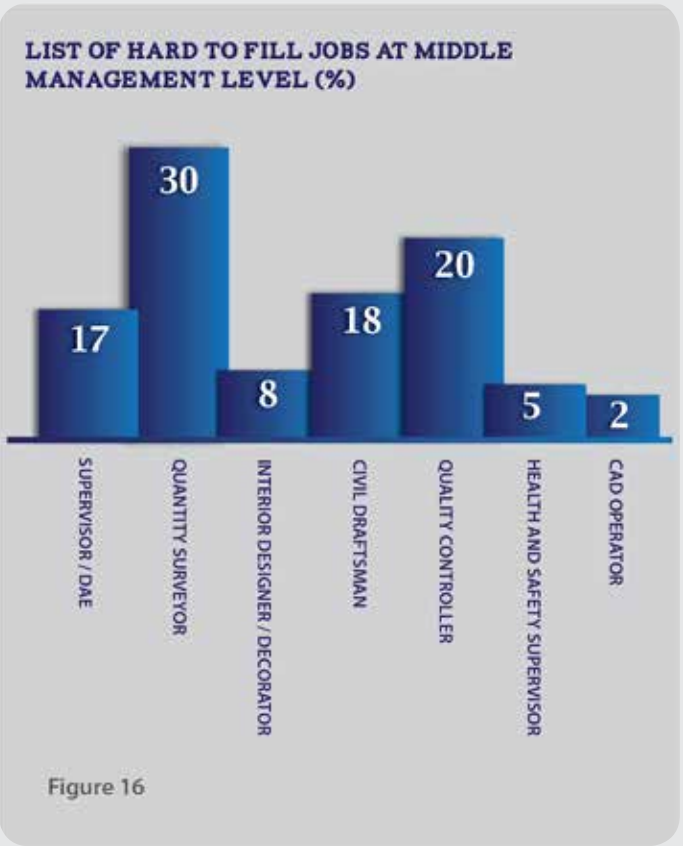


5 - Replacements - Hiring against jobs that were previously filled
6 - New Jobs - Hiring against newly created jobs due to expansion or other factors

The next question aimed to explore what types of jobs within the construction sector were hard to fill. The respondents were asked to select/list jobs that were hard to fill in their companies. Figure 16 shows that the most difficult jobs to fill at the middle-management level were quantity surveyor (30%), quality controller (20%), draftsman (18%) and supervisors/DAE (17%).

In contrast, Figure 17 shows that at the workers level, carpenter and electrician (20% each) were mentioned as the most difficult jobs to fill followed by mason (17%), welder (14%), scaffolding workers (12%) and crane operators (11%). It was also mentioned that conservation-mason and glazing workers are hard to find in the market (this was mentioned by one company only). The next question aimed to uncover the possible reasons for certain jobs being hard to fill jobs, as mentioned in Figures 16 and 17. Figure 18 shows eight possible reasons for the hard-to-fill jobs at both levels. The lack of required work experience was ranked as the main reason for the hard-to-fill jobs at both the middle-management level (22%) and worker-level (18%). It indicates that work experience was highly valued in construction sector companies.

Therefore, TVET institutes must arrange on-the-job trainings for their students enrolled in construction sector trades. The lack of required qualifications and skills was mentioned as the second reason (15%) for the middle-management level jobs. It indicates that there exists a mismatch between available qualified and skilled





workforce and the requirements of the construction sector companies. Low salary was mentioned as the third reason (13% each) for middle-management and worker-level jobs.

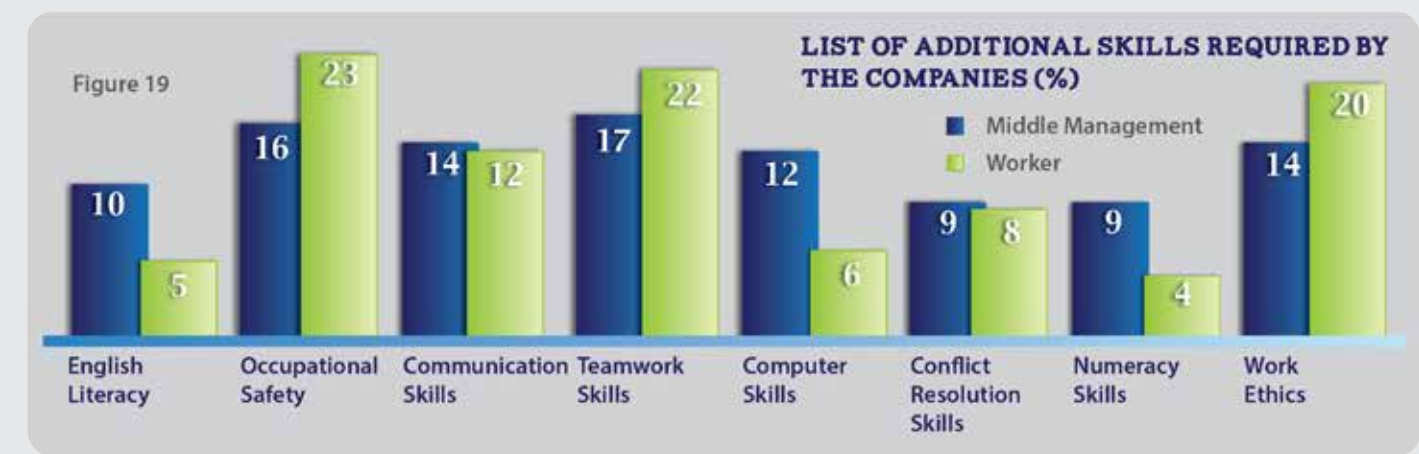
The next question examined which occupations in the construction sector severely lack technical skills. Table 1 shows that the participants identified 13 occupations that severely lacked technical skills (the participants were given the option to identify more than one occupation). The key occupations were quantity surveyor (39%), mason (32%), supervisor / DAE (29%), carpenter (29%), electrician (26%), painter and decorator (23%), and plasterer (23%). The remaining occupations were given a ranking of less than 20 percent each. The finding further validates that the TVET institutes must upgrade their courses to meet the skills needs of the construction sector in these 13 occupations/trades at least.

The next question explored whether construction sector companies required any additional skills other than those mentioned in the preceding paragraphs. The majority of companies (70%) said that they required additional skills such as those mentioned in Figure 19. For the middle-management level employees, the highest ranked four additional skills were teamwork (17%), occupational safety (16%), communication skills (14%) and work ethics (14%).

In contrast, for the worker level employees, the same additional skills were ranked as the most required skills but with a slightly different order of priority: occupational safety (23%), teamwork (22%), work ethics (20%) and communication skills (12%). In summary, these skills were considered as the most required additional skills for both level employees. Therefore, it is suggested that these additional skills should be incorporated by the TVET institutes in their training programmes.

OCCUPATION	OCCUPATION
Supervisor / DAE	Stonemason
Quantity surveyor	Crane Operator
Electrician	Bulldozer Operator
Mason	Civil draftsman
Carpenter	Wall and Floor Tile Fixer
Painter and Decorator	Dumper Operator
Plasterer	---

Table 1 – List of Occupations that Severely Lack Technical Skills



Next, the participants were asked to suggest some training courses in order to address the skills shortcomings in the existing TVET qualification holders and other construction sector employees. The following 12 training courses mentioned in Table 2 were suggested by 25 percent of the workshop participants. The highest preference was given to occupational health and safety course (30%).

The second highest preference was given to quantity surveyor (13%) followed by soft skills (such as teamwork, communication and conflict resolution skills), computer programmer and installation of fire-fighting equipment skills (9% for each last three categories). The courses of supervision, scaffolding, AutoCAD, numeracy skills and work ethics were given very low preference (4 % for each category). Two non-traditional courses of 3D visualiser and solar equipment installation were also suggested, but their preference was very low (4% each).

The participants were asked to show their preference for TVET institutes. The majority of the participants (68%) showed their preference for TVET training institute(s).

Figure 20 shows that 53 percent participants preferred TEVTA institutes, and 17 percent preferred CTTI – Construction Technology Training Institute, Islamabad. The preference for private institutes was 17 percent, followed by 10 percent for others.

Furthermore, only 27 percent participants suggested high quality training institutes for the skills training of construction sector workforce. Government College of Technology Rasul (to be referred to as TEVTA Rasul in this report) was recommended as a high quality TVET institute by (36%) participants. Construction Material Quality Testing Laboratory, Rawalpindi, Resource Access, AMAN-TECH, Cholistan Institute, KIT Kahuta, Defence Housing Welfare Society Institute, Lahore and Civil Works Organization, Rawalpindi were given a preference of 9 percent each. In summary, TEVTA Rasul was appreciated for its high quality graduates. One participant said that he or she gave premium salary to TEVTA Rasul graduates. Therefore, it is suggested that PSDF should visit TEVTA Rasul in order to obtain their input in construction-sector skills development programmes.

NAME OF TRAINING COURSE	SUGGESTED DURATION (IN WEEKS)	NAME OF TRAINING COURSE	SUGGESTED DURATION (IN WEEKS)
Soft Skills	2 days for each topic	Solar equipment installation	4
Supervision	2-3	Scaffolding	2
Quantity Surveyor	24	3D visualiser	Did not mention
Health and Safety	2-8	AutoCAD	Did not mention
Computer programmer	12	Numeracy Skills	Did not mention
Fire-fighting equipment installation skills	2	Work ethics	Did not mention

Table 2 – Suggested Training Courses

The next question (25) was asked to examine whether participating companies regularly received information about the availability of TVET courses for the construction sector. Only 23 percent participating companies said that they receive information about the availability of TVET courses for the construction sector (see Figure 23). The remaining 77 percent did not receive any information about TVET courses. This is an alarming number that indicates the existence of a communication gap between the TVET providers and the construction sector companies. This gap needs to be bridged through improvements in the TVET advertisement and information circulation.

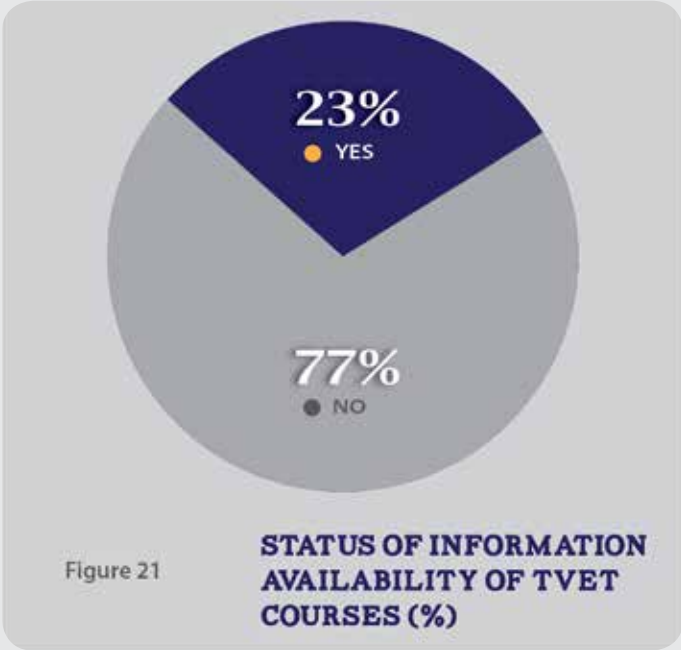


Figure 21

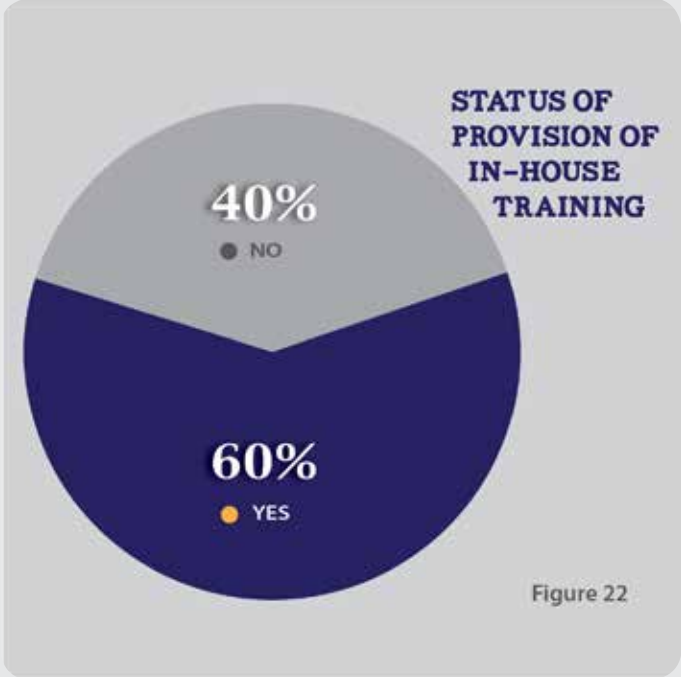


Figure 22



Figure 23



Figure 20

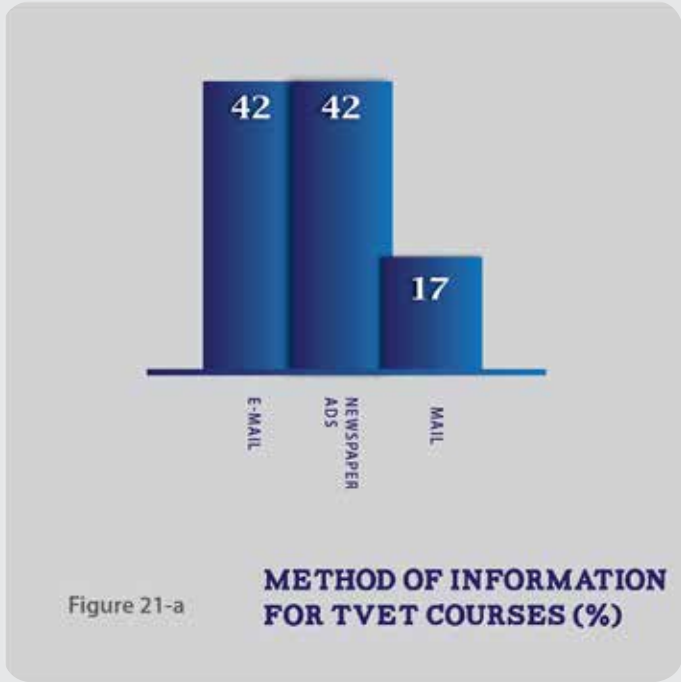


Figure 21-a

Through question number 27A, the participants were asked to show their willingness for out-of-the-company training programmes for their employees. 64 percent of the participants said that they were willing to relieve their employees for out-of-the-company training programmes (see Figure 24). It reflects that the majority of the companies were interested in training their employees. As the preferred duration of these trainings was concerned, figure 25 shows that majority of the companies were willing to relieve their employees for 2-3 weeks (48%) and 2-4 weeks (39%). Only 4 percent companies were willing to send their employees for 6-8 weeks training programmes. Therefore, this finding indicates that any out-of-the-company training course should be

designed within 2-4 weeks duration in order to ensure maximum participation of trainees.

Part B of the same question was asked to know whether the participating companies who answered question 27A were willing to co-finance training of their employees. In response, 41 percent out of 64 percent companies showed their willingness to co-finance trainings of their employees. Out of these 41 percent companies, 67 percent companies were willing to pay the salary of their employees for the duration of the training. It shows that these companies were not only willing to co-finance trainings of their employees but they were willing to pay the employees' salaries.

The companies who received information about TVET courses regularly (see Figure 21a) obtained it through e-mail (42%), newspaper advertisements (42%) and postal mail (17%). It shows that the TVET institutes should use e-mail and newspaper advertisements for wider circulation of their TVET courses for the construction sector.

The next question attempted to see whether the participating construction sector companies provide in-house training to their new employees. Figure 22 shows that majority of the companies (60%) were providing in-house training to their new employees. The new employees were mostly trained on-the-job (86%) - see Figure 23. In contrast, only 14 percent companies were using off-the-job training methods for their new employees. Therefore, on-the-job training was the most popular method for the training of new employees. It is a matter of concern that 40 percent of the companies did not arrange any in-house training for their new employees. This matter needs urgent attention.

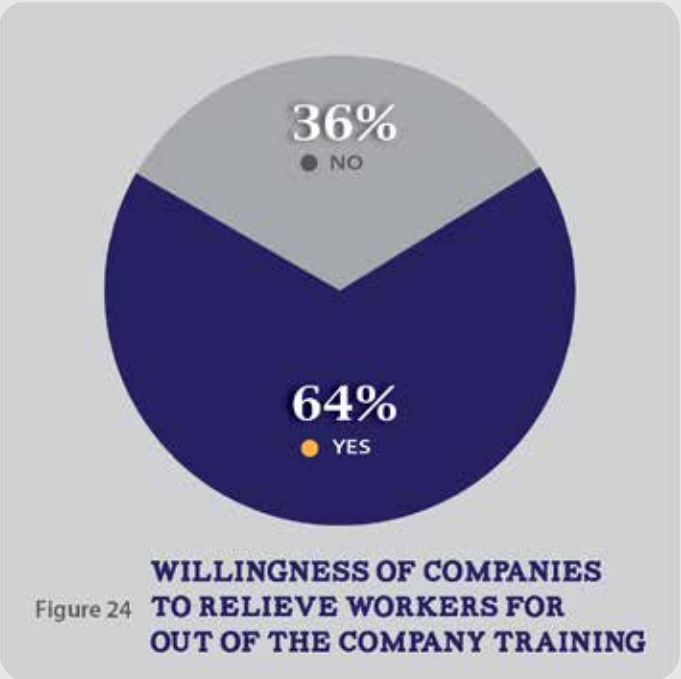


Figure 24

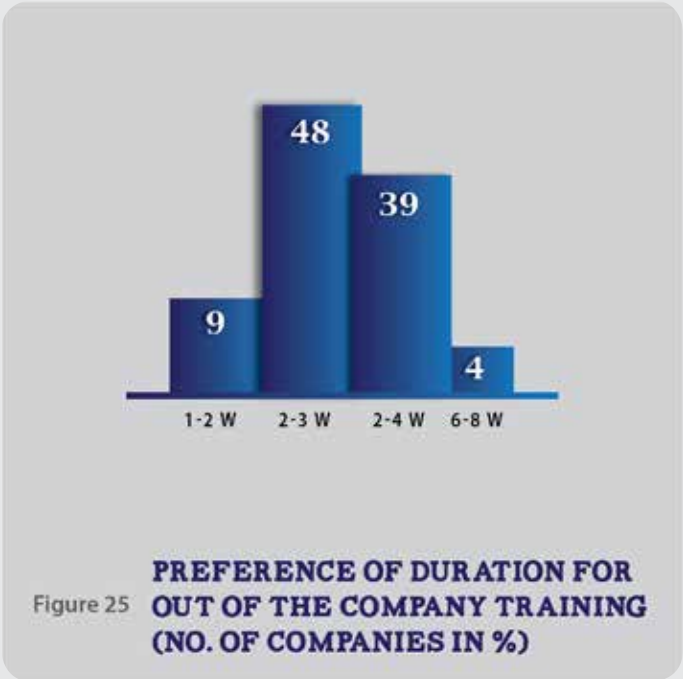


Figure 25

LIST OF CLASSROOM BASED TRAININGS FOR UN-EMPLOYED PEOPLE		LIST OF ON-THE-JOB TRAININGS FOR UN-EMPLOYED PEOPLE	
Steel Fixing	Finishing work	Architectural design	Surveying (Land)
Surveying	Tile Fixing	Carpentry	Solar Panel Assembly
Electrician	Plumbing	Plumbing	Tile Fixing
Health and Safety	Masonry	Electrician	Drafting
Civil Work	Electric and Solar energy	Masonry	Office Management
		Welding	Shuttering

Table 3 – List of Trainings for Un-employed People

Question numbers 28 A and B attempted to identify whether the participating companies were willing to provide classroom-based and on-the-job trainings to unemployeeed persons. In response to question number 28A, 25 percent of the companies showed their willingness to provide classroom-based trainings to unemployed persons. The companies were willing to provide trainings in 10 trades (see first two columns in Table 3). Two companies showed that they can arrange trainings for 5-10, one company for 15, two companies for 40-50 and one company for 300 unemployed persons.

In response to question number 28B, 45 percent companies showed their willingness to arrange on-the-job trainings for unemployed persons. The last two columns in Table 3 show a list of 13 trainings that can be arranged for un-employed persons. One company was willing to arrange these trainings for 30 persons, three companies for 4-5 persons and four companies for 10-15 persons.

In part A of question number 29, the participating companies were asked to indicate their training demand against 16 trades listed in Table 4 along with their preferred duration. The participants were given the option to select all trades (if applicable) in order to indicate their overall training needs. 35 percent companies (11 out of 31) provided details of their training needs along with their preferred training duration. As the suggested duration of these trades was concerned, column three shows that majority of the companies preferred 3 months over 6, 12 and more than 12 months. The last column shows that total demand of these trades was 401. The demand range was in between 18 to 34 trainees across all the trades. The highest demand of 34 came for masons.

In part B of question 29, the participants were asked to list courses that were not listed in Table 4. As a result, 26

percent companies (8 out of 31) listed 10 new courses along with their preferred duration. However, the majority of the companies did not mention the demand for these suggested courses (grey areas in Table 5 show that the respondents did not provide any information in these columns).

In part C of question 29, the participating companies were asked to rank six TVET courses development/testing agencies on a scale of 1 to 5, where 1 was high and 5 was low. The agencies were: 1) Punjab Board of Technical Education - PBTE/ TEVTA; 2) PBTE/PVTC; 3) PBTE/NAV TTC (National Vocational and Technical Training Commission); 4) City and Guilds – UK; 5) National Training Bureau (NTB) and 6) Edexcel UK. Only 35 percent participating companies ranked these agencies.

The PBTE/TEVTA was ranked 1 by 75 percent companies who ranked the agencies1; PBTE/PVTC was ranked as 1 by 17 percent companies. PBTE/NAV TTC and City and Guilds UK were ranked 2 by 25 percent companies and one company each gave a ranking of 2 to NTB and Edexcel.

TRADE NAME	PREFERRED DURATION (IN MONTHS)				TRAINING DEMAND
	3	6	12	MORE THAN 12	
Quantity Surveyor	2	1	3	3	21
Civil Surveyor	2	3	2	1	18
Draftsman (Civil)	2	---	5	1	26
Diploma of Associate Engineer	1	1	4	1	20
AutoCAD (Civil)	4	1	3	1	32
Plumber	8	1	---	---	33
Mason	7	2	---	---	34
Carpenter	7	2	---	---	33
Electrician	6	3	---	---	23
Welder	7	2	---	---	17
Shuttering Carpenter	5	2	---	---	24
Bulldozer Operator	1	4	3	---	25
Crane Operator	1	4	3	---	21
Floor and Tile Fixer	2	2	8	---	21
Steel Fixer	2	4	3	---	22
Painting and Decorating	6	2	---	---	31

Table 4 – Training Demand

TRADE NAME	PREFERRED DURATION (MONTHS)	TRAINING DEMAND	TRADE NAME	PREFERRED DURATION (MONTHS)	TRAINING DEMAND
Safety Supervisors	3	2	Interior and Exterior Finish	6	---
Mason-Conservation	6	5	Material Quality Controller	6	---
Stone Mason	6	2	Photovoltaic solar panels	1	---
Computer	3	1	Soft Skills (communication & motivation etc.)	15 days - 1 Month	---
HVAC – Heating, Ventilation and Air-conditioning	2	---	Building Management Services	6	---

Table 5 – Details of New Trades

BREAKOUT SESSIONS

After the questionnaire, the workshop participants were divided into two breakout sessions: 1) Structural Finish and 2) Architectural Finish and Construction Services. The purpose of these sessions was to discuss the sub-sectors skills needs in more detail.



The participants were encouraged to share their views on the growth potential in the assigned sub-sectors, new trends or new technologies, most needed skills, training targets, and ideas for future collaboration between CAP and PSDF.

Each group was assigned a group leader from the participants and was moderated by PSDF staff or the consultant. After the discussion, each group leader gave a presentation of the findings of the focus group discussions. The details of these discussions are presented in the following section.

1. *What sub-sectors are growing or have a definite growth potential? (Evidence/cases can be cited)*
2. *What new trends/technologies/drivers of change require efforts for skills development of construction workers?*
3. *What are the most needed skills for your sub-sectors?*
4. *What should be the overall skills training target for the construction industry in Punjab and in your sub-sector? for training, assessment and job matching*
5. *What have been successful past examples of Technical and Vocational Training (TVET) in Pakistan (this could be from training experience of individual companies, institutes or donors)*
6. *Based on your knowledge of the sector, which country's skills qualifications, certifications and trainers can be most useful to Pakistan's construction industry? (country, skills to be identified along with reason(s) for preference)*
7. *What role can CAP play in the skills development initiative?*
8. *Can you share any other ideas/suggestions to improve skills development of the construction workers?*

BREAKOUT SESSION ON SKILLS NEEDS IN STRUCTURAL FINISH SUB-SECTOR

The group was constituted to discuss in depth the skills needs of the Structural Finish sub-sector. The group comprised members (for details please see Annexure 2) and led by Mr. Arshad Majeed Bhatti from Izhar Construction Group. This group was moderated by Ms. Sarah Saeed – Skills Strategy Advisor, DFID.



GROWTH POTENTIAL:

The participants were of the view that the construction sector was thriving globally, as evidenced in various international publications. According to the Asia Construction Outlook 2013⁸, Asia was tipped to be the world's fastest growing construction market until 2020.

The participants were of the view that a large number of small and big development projects have been initiated both in the public and private sectors in Pakistan. The following sub-sectors were identified as those depicting strong growth or the potential to grow:

- **Housing:** *It was decided that the housing sector shows a definite growth potential owing to the launch of the Prime Minister's Low-Income Housing Scheme in the public sector. This argument found support in the fact that several private-sector housing schemes are also currently underway.*
- **Roads and Highways:** *In the last few decades, intra-city connections highways have been improved vastly. However, this sub-sector requires more public investment which is expected in the coming years.*
- **Water:** *Pakistan being a water-deficient country is in dire need of new dams, barrages and canals. The importance of watercourse construction was discussed with reference to the Punjab. It was decided that there was a need for water conser-*

vation work due to the high depletion rate of sweet water. Rainwater harvesting was identified as a specialized area that can be developed in the future.

- **Railways:** *Despite being an old sector, railways presents potential for growth. Areas that require construction services include improving the condition of existing rail tracks, cargo trains, building of warehouses, and bridges.*

The group was of the view that there is a need for more large-scale infrastructure construction projects in Pakistan in order to improve the economy. It was discussed that Pakistan can face shortage of construction-sector skilled workforce due to potential export of labour for Dubai World Expo 2020 and Qatar Football World Cup 2022. In contrast, it was also considered as an opportunity to export skilled workforce provided that the Government of Pakistan and other related institutions plan ahead to ensure that they have sufficient trained and skilled workforce for these events and the local projects. Lastly, it was concluded that women construction workers have faded away. In the past, women from nomadic tribes (Oads) were hired for housing and other construction work in the Punjab, but now they have been replaced by male workforce.

8 - <http://www.aecom.com>

NEW TRENDS AND TECHNOLOGIES:

The participants were of the view that in Pakistan, conventional methods of construction have been practiced since 1947. Despite innovations that have increased mechanisation, new trends in construction have not been able to make inroads into this sector. The group identified the following six new construction-sector trends that should be considered during efforts for skills development:

1. **Solar and other alternative energy systems installation**
2. **Rainwater harvesting and aquifer recharge technologies**
3. **New technologies in HVAC (Heating, Ventilation and Air-conditioning), plumbing and pipefitting**
4. **Scaffolding techniques**
5. **Stonemasonry**
6. **Material testing especially for bricks**

It was suggested that Quick-Form/Quick-Fix scaffolding and shuttering techniques should be introduced to allow reuse of materials and to avoid wastage of temporary frame structures being used in building, repair, and maintenance. The idea of using solar heating for industry at large was also floated.

MOST NEEDED SKILLS:

The group was of the unanimous view that all trades in the construction sector required skills development efforts. More than 300 different specialties were required for the completion of a given construction project. It was decided that there is a need for on-the-job refresher courses for all tradespersons to improve the quality of skills that they already possess. Construction workers such as building electricians could be registered or licensed through a regulatory body such as the Pakistan Engineering Council. Such a licensing body can help qualified workers earn a premium over others; thus making the sector attractive for new entrants. The following five trade-persons were identified as the most needed in the Punjab:

1. **Tile fixers**
2. **False ceiling workers**
3. **Plumbers**
4. **Plasterers**
5. **Building Electricians**

SKILLS TRAINING TARGET:

According to the Economic Survey of Pakistan (2012-2013), the construction sector has shown 5.2 percent growth. The group was of the view that, the skills training target for the construction sector of both Punjab and Pakistan as a whole, is contingent upon the growth of the sector. Therefore, the group did not mention a fixed number for skills training target. As a hypothetical example, it was discussed that if a construction project(s) of PKR 500 billion is implemented in one year, then it has the potential to generate 5 million new jobs; 50 percent of which would be at worker level (15% skilled workers and 35% semi-skilled workers).

SUCCESSFUL PAST EXAMPLES:

The participants were able to cite three examples of TVET institutes/companies whose graduates had been employed in their companies. TEVTA Rasul was presented as a role model due to the high quality of its graduates. Gammon Construction Limited (an international construction company) trained a significant number of construction workers during their project in Pakistan. The company pioneered 'Reinforced Concrete Construction' (RCC) and the 'Shell Process' which were subsequently used for construction of a number of factories/mills. It was also mentioned that the Defence Housing Authority (DHA) Lahore has established a high quality training institute for construction workers. The group suggested that CAP and PSDF visit TEVTA Rasul and DHA institutes to benefit from their experience of designing skills development program for the construction sector.

INTERNATIONAL ASSISTANCE IN TRAINING:

It was the participants' unanimous and emphatic view that Pakistan could be self-sufficient in the provision of skills training for the field of construction. It was decided that there was no need to seek international assistance. However, if needed master trainers could be hired from Turkey, Malaysia and Japan for training of trainers only. The language constraint in case of foreign trainers was also discussed.

ROLE OF CAP:

The majority of group members were of the view that this workshop successfully highlighted the need for skilled construction workforce. CAP can play an important role in improving the quality of trainings by providing valuable input in the design and delivery of training programs. For example, it can work on developing a uniform framework for on-the-job trainings.

Moreover, it was mentioned that there was a lack of awareness among employers about the availability of trained workforce. CAP can bridge the gap by maintaining a database of available trained workers that can be accessed by potential employers. It was also suggested that CAP can take steps to ensure that PSDF's certified trainees can be recommended for emerging jobs.

OTHER SUGGESTIONS:

The Structural Finish group proposed the following additional recommendations:

1. **CAP can work with PSDF for effective training delivery through its members.**
2. **On-job trainings for plumbers and masons should commence immediately under a training framework. Quality can be assured through external testing.**
3. **PSDF must share information about**

its trained workers with CAP in order to ensure their employability. This recommendation was made based on the observation of one participant from Muzaffargarh who was unaware of PSDF's skills development efforts in the city, and had experienced a shortage of skilled masons for his company project.

4. **Training duration should be mentioned in hours, not in months. It was mentioned that the existing TVET courses were unnecessarily long and could be compressed to shorten the lead time for provision of training to construction workers.**

DETAILS OF THE DISCUSSION

GROWTH POTENTIAL:

After a long deliberation, two main sub sectors namely Grey Structure and Finishing were identified as having a strong growth potential. For a better understanding of the different activities involved in the Architectural and Construction Services sectors, the following value chain was developed and shared by the participants: The following two sub-sectors were identified as showing growth potential:

- **Value chain:** A six-stage construction project value-chain was suggested by the group. The first stage involved architectural drawing and structural design. In this stage draftsman and surveyor design a project layout. The second stage involved excavation, backfilling and foundation work. It was told that the excavation work is usually outsourced to a third party and foundation work is carried out by masons and labour. The third stage was called superstructure and it involved surveyor who ensures dimensions and angles of the project. In the fourth stage, shuttering, plumbing and electricity work is carried out. In the fifth stage, carpenters and aluminum workers are engaged to carry out floor work and to install windows respectively. The last stage involved finishing work and usually masons are engaged to fix tiles and marble or other fair-face finishing material.

- **Grey structure** was portrayed as a key component of every construction project. It was mentioned that new chemicals are being used to improve the strength and firmness of grey structures. Therefore, this sub-sector requires use of new techniques that employ skills such as chemical mixing and quality control. Based on this, it was anticipated that chemical mixing and quality control experts will be in high demand in this sub-sector.
- **Finishing** was identified as the second key sub-sector within the construction sector. The growth of the sector was attributed to increasing interest shown by clients, in high quality finish e.g. front-face finish. Finishing in both residential and commercial construction was discussed as possessing growth potential. Moreover, it was mentioned that construction services has strong growth potential. Especially in commercial construction, services such as glazing work, installation of firefighting equipment and building maintenance will have a good market in the future.

BREAKOUT SESSION ON SKILLS NEEDS IN ARCHITECTURAL FINISH AND CONSTRUCTION SERVICES SUB-SECTORS

This group was comprised of 11 members and was led by Mr. Arif Ali Khan from Izhar Construction Group. The session was moderated by Muhammad Nadeem Dogar, Consultant Capacity Building and Mr. Ali Sarfraz, CEO of PSDF.

The group was of the view that in the architectural and finishing sub-sectors, mostly use skilled workers are masons, carpenters, plumbers and electricians. As a result of having been trained on-the-job, these workers rely heavily on the knowledge and expertise of their seniors. Therefore, to create awareness about new trends such as use of chemicals in cement and concrete, senior workers must be trained first. This will enable them to disseminate these new skills to their mentees.

Furthermore, the high potential for growth in both public and private construction sectors was highlighted. In terms of the monetary value and use of heavy machinery, the public sector has tremendous potential compared to the private sector. However, in terms of labour, more skilled and unskilled workforce is used by the private sector, especially in residential and commercial projects.

NEW TRENDS AND TECHNOLOGIES: MOST NEEDED SKILLS:

The introduction of new trends and technologies in these sub-sectors was considered as an opportunity that needs to be exploited by the construction sector. The following five new trends/technologies were identified:

1. **High-rise Building:** The group discussed that the trend for high-rise buildings was catching on, especially in larger cities of the Punjab such as Lahore, Faisalabad and in Islamabad. Indicating that, in future, the construction sector would require new technology and skilled workforce that is able to meet the challenges of high-rise building construction.
2. **Fair-face Finish:** It was mentioned that new material was being used to improve the quality of fair-face finish, both for commercial buildings and private homes. As a result, the need for workforce trained in fair-face finish was increasing.
3. **Steel Shuttering:** Steel shuttering was described as a rapidly emerging trend. Clients prefer steel shuttering because it not only

improves the quality of construction but also minimizes wastage of resources such as cement, concrete and labour. Further, it was mentioned that steel shuttering was very popular for construction of different sizes of columns in RCC structure.

4. **Waterproof Slabs for Roofs:** This was identified as a new technology gaining popularity in the Punjab.
5. **New Finishing Paints:** This was mentioned as another important area experiencing growth, requiring expertise and having great potential for employment of skilled workforce in the Punjab.

The group was of the view that skilled workforce related to the entire construction sector will be in high demand in Pakistan due to two factors: firstly, due to announcement of mega projects such as infrastructure development, construction of the Garment City and other energy and power projects and secondly, due to mega projects in the Middle East such as Qatar Football World Cup 2022 and Dubai Expo 2020. Based on these factors it was anticipated that the construction sector will need trained masons, carpenters, plumbers, electricians, quality control supervisors, etc., and that a large number of skilled workforce associated with the construction sector will be exported to the Middle East.

The group was of the opinion that the following seven skills are in high demand for the present and future construction sector of Punjab and Pakistan:

1. **Masonry:** Masons play an integral role in the entire construction project as indicated in the value chain above. They perform the tasks of bricklaying, plastering as well as marble and tile fixing.
2. **Plumbing:** Plumbers perform important tasks in a construction project, such a piping, sewerage and sanitary fittings.
3. **Electrician:** Electricians also contribute greatly to the success of a construction project, where their work encompasses electric wiring and installation of electric equipment.
4. **Carpenters**
5. **inish workers:** Finishing workers specialising in glazing work, fair-face tiling, wood-finishing and painting will be in high demand.
6. **False ceiling and timber flooring:** The demand for workers trained in false ceiling and timber flooring was anticipated to be high both at present and in the future.
7. **Scaffolding workers:** It was emphasised that scaffolding workers will be in high demand due to increasing construction of high-rise buildings.

SKILLS TRAINING TARGET:

Similar to the Structural Finish group, this group was unable to recommend a specific number for the skills training target in the Punjab. However, there was consensus that skilled workforce such as masons, carpenters, plumbers, electricians, shuttering carpenters, scaffolding workers, steel fixers and fair-face finishers were in demand and will be required in significant numbers to cater to the future needs of the construction sector.

SUCCESSFUL PAST EXAMPLES:

The quality of training provided by TEVTA Rasul was appreciated. This view was also endorsed by a representative of City and Guilds attending the workshop. Due to

the good quality of services provided the institute had received City and Guilds accreditation. The participants recalled an initiative regarding Pakistan's construction sector skills training sponsored by the Asian Development Bank. However, they expressed that it was restricted to a couple of workshops and could not progress further.

INTERNATIONAL ASSISTANCE IN TRAINING:

The group endorsed the Structural Finish group's point of view that Pakistan should be self-sufficient in the field of skills training provision and that there was no need to seek international assistance. It was a unanimous view that language would be a great barrier if foreign trainers were to be hired. However, it was emphasised that the TVET institutes must incorporate new trends into their existing curriculum and their teachers/trainers must be well trained in new technologies such as glazing work and fair-face finish etc.

ROLE OF CAP:

The possibility of a partnership between CAP and PSDF to capitalize on PSDF-sponsored trained/skilled workforce was discussed. It was agreed that CAP would organise on-site trainings and provide residential facilities for training construction-sector workforce in collaboration with PSDF. To encourage workers to participate in skills training, it was recommended that a daily stipend equal to the daily wage of that particular trade should be paid.

OTHER SUGGESTIONS:

The Architectural Finish and Construction Services group made the following additional recommendations:

- **1. Heritage conservation:** Citing the example of the Walled City Project of Lahore, Qavi Enterprises (contractor of the project) discussed that there was an acute shortage of skilled workers for conservation of old architectural buildings such as Lahore Fort. Qavi Enterprises experienced difficulty in hiring conservation masons and wood-carving carpenters and suggested that they could provide workers skilled in these trades as trainers to train other masons and carpenters in the field of conservation in collaboration with PSDF.
- **2. Regulatory authority:** It was suggested that a government regulatory authority was needed to regulate the quality of the construction sector.
- **3. Installation of firefighting equipment:** The group suggested that skilled workforce for installation of firefighting equipment should be prepared to meet the firefighting challenges arising during high-rise construction.
- **4. Three-stage masonry training programme:** As mentioned in the construction sector value chain, masons play a pivotal role in a construction project. They perform the tasks of bricklaying/foundation work, plastering, tile and marble fixing. It was suggested that a three-stage training program for masons be designed. In the first stage, masons should be trained in the basic fields of bricklaying and foundation work; in the second stage, training should be provided in the area of plastering and in the third stage, these masons should be trained in the areas of marble and tile-fixing.

CONCLUSION

Both groups provided deep insights into the sector's growth potential and the required skills. The most needed skills at the worker level were masonry (bricklaying, plastering, and tile and marble fixing), carpentry, electrician, plumbing, fair-face finishing and scaffolding. Both groups expressed confidence in the ability of domestic TVET institutes to provide quality training to the construction sector workforce. TEVTA Rasul and Defence Housing Welfare Society Training Institute were lauded as high quality TVET institutes providing training for the construction sector. Therefore, it was suggested that PSDF consult these two institutes for PSDF's sponsored skills development program.



Thirty-one construction companies responded to the survey in this skills needs assessment exercise, out of which eighteen companies participated in the focus group discussions during breakout sessions. Majority of the workshop participants were optimistic about the future of the construction industry in Pakistan. They anticipated launch of a number of public sector projects such as construction of water reservoirs, roads, special economic zones like the Garment City and other infrastructure projects. They were also optimistic about new housing projects in both public and private sectors. Based on these factors they forecasted high demand of construction sector skilled workforce in the future.

The workshop participants identified a number of sub-sectors that show definite growth potential. The Structural Finish group identified housing, roads and highways, water reservoirs and railway as growing sub-sectors. They also identified most needed five skills as masonry (tiling), carpentry, plastering, plumbing and electrician.

The Architectural Finish and Construction Services group identified grey structure, fair-face finish and construction services such as glazing work and installation of firefighting equipment as three key sub-sectors with a high growth potential. Furthermore, the group identified masonry, carpentry, plumbing, fair-face finishing, tiling, and scaffolding as the most needed skills in the construction sector. A number of key areas identified in the survey

A number of key areas identified in the survey questionnaire require attention of PSDF and are discussed in the section on questionnaire findings. Here, six key recommendations are being highlighted.

Firstly, a high number of participating companies (73%) were not aware of the availability of entry level TVET courses for the construction sector, indicating that there was a big communication gap between the TVET institutes and the construction sector companies. This communication gap needs to be minimized to improve awareness about available entry level TVET courses.

Participating companies were not satisfied with the quality of TVET qualification holders. They identified obsolete technical knowledge, lack of practical experience and lack of required qualifications and skills as key factors for the poor quality of TVET qualification holders. This indicates that TVET institutes should improve the quality of their programs and need to update their curricula to equip their graduates with skills required by the construction sector. Quality control was identified as another important skill area that requires immediate interventions in order to avoid substandard and unsafe

The participants identified occupational health and safety, teamwork skills, communication skills and work ethics as the most important additional skills required for the middle management and worker level construction sector workforce. Additionally, at the middle management level, supervising, surveying and drafting skills were identified as the most difficult trades to be filled. Therefore, it is suggested that TVET institutes should pay attention to above mentioned skills in order to meet the skills needs of the construction sector. Majority of the participants also stressed the need to organize occupational health and safety trainings for the construction sector in order to minimise work related injuries, fatalities and medical costs.

construction. Improving the quality control can result in substantial savings to the construction sector by reducing wastage. It can also save human lives by reducing number of accidents arising due to substandard construction.

Lastly, CAP showed willingness to forge a partnership with PSDF for a construction skills development program. The participating companies showed interest in PSDF's skills development initiative, and identified a number of skill areas in which they can organize classroom-based and on-the-job trainings for unemployed people. PSDF can capitalize on this opportunity by keeping CAP engaged and updated on the skills development initiative.

New areas identified for skill development were 3D visualisers, photo-voltaic solar panel assembly, conservation masonry and woodcarving carpentry. Though the demand for these skills is nominal at present, they have potential in the future. In order to ensure interest and participation in PSDF sponsored construction sector training programs, it was suggested that PSDF pay a daily stipend equal to daily wages of that particular trade.

ANNEXURES

Skills Needs Assessment - Construction Sector Questionnaire

Annexure 1 - Survey Questionnaire

NOTE: This information will be kept confidential and will ONLY be used for designing PSDF Schemes. It will not be shared with any government or other entity. Please fill in the questionnaire below using CAPITAL LETTERS. In multiple choice questions, please put 'X' against one or more relevant choices. In Yes / No options, please encircle one of them.

1	Name:	Job Title:																																								
2	Name of Company/ Organization:																																									
3	Company Address:																																									
4	Telephone No:	Fax:																																								
5	Email:	Web:																																								
6	<p>Which sub-sector(s) does your company represent within the Construction Sector?</p> <table border="1"> <tr> <td>Residential Construction</td> <td></td> <td>Industrial Construction</td> <td></td> <td>Heavy Civil Construction</td> <td></td> </tr> <tr> <td>Institutional Construction</td> <td></td> <td>Commercial Construction</td> <td></td> <td>Architectural Services</td> <td></td> </tr> <tr> <td>Construction Services (i.e., structural steel erection)</td> <td></td> <td>Construction Material Producers</td> <td></td> <td>Machinery Hiring and Leasing Services</td> <td></td> </tr> <tr> <td colspan="6">Any Other (Please specify): _____</td> </tr> </table>		Residential Construction		Industrial Construction		Heavy Civil Construction		Institutional Construction		Commercial Construction		Architectural Services		Construction Services (i.e., structural steel erection)		Construction Material Producers		Machinery Hiring and Leasing Services		Any Other (Please specify): _____																					
Residential Construction		Industrial Construction		Heavy Civil Construction																																						
Institutional Construction		Commercial Construction		Architectural Services																																						
Construction Services (i.e., structural steel erection)		Construction Material Producers		Machinery Hiring and Leasing Services																																						
Any Other (Please specify): _____																																										
7	<p><u>A:</u> When your company was established (Year)? _____</p> <p><u>B:</u> What is the size of your company?</p> <p><input type="checkbox"/> Small & Medium <input type="checkbox"/> Large</p> <p>Small and Medium: Annual turnover is less than Rs. 250 million Large: Annual turnover is more than Rs. 250 million</p>																																									
8	<p><u>A:</u> What is the total number of permanent employees in your company: _____</p> <p><u>B:</u> What is the number of casual employees who work on construction projects? _____</p>																																									
9	<p>Kindly indicate Sub-departments of your company:</p> <table border="1"> <tr> <td>Architecture</td> <td></td> <td>Engineering</td> <td></td> <td>Interior Design</td> <td></td> <td>Structural Work</td> <td></td> <td>Finishing Work</td> <td></td> </tr> <tr> <td>Electrical</td> <td></td> <td>Plumbing</td> <td></td> <td>Warehousing</td> <td></td> <td>Heavy Machinery</td> <td></td> <td>Shuttering</td> <td></td> </tr> <tr> <td>Accounts</td> <td></td> <td>Maintenance</td> <td></td> <td>Site Office</td> <td></td> <td>Transport</td> <td></td> <td>Inspection & Quality</td> <td></td> </tr> <tr> <td>Marketing</td> <td></td> <td>HR & Administration</td> <td></td> <td>Research & Development</td> <td></td> <td colspan="4">Any Other Department(s): _____</td> </tr> </table>		Architecture		Engineering		Interior Design		Structural Work		Finishing Work		Electrical		Plumbing		Warehousing		Heavy Machinery		Shuttering		Accounts		Maintenance		Site Office		Transport		Inspection & Quality		Marketing		HR & Administration		Research & Development		Any Other Department(s): _____			
Architecture		Engineering		Interior Design		Structural Work		Finishing Work																																		
Electrical		Plumbing		Warehousing		Heavy Machinery		Shuttering																																		
Accounts		Maintenance		Site Office		Transport		Inspection & Quality																																		
Marketing		HR & Administration		Research & Development		Any Other Department(s): _____																																				

13 What academic qualifications are required to apply for a job in your company:

A: Middle Management Level

☐ Matric ☐ Intermediate ☐ Bachelors ☐ Masters ☐ Technical Diploma

☐ Others (please specify): _____

B: Workers Level

☐ Primary ☐ Middle ☐ Matric ☐ Intermediate ☐ Bachelors ☐ Technical Diploma

☐ Others (please specify): _____

14 What is the existing training status of your employees?

A: Middle Management Level	B: Workers Level
Trained at Technical ¹¹ & Vocational ¹² Training (TVET) Institute (TEVTA or PVTC or Others)	Trained at TVET Holders (TEVTA or PVTC or Others)
Trained On-the-Job	Trained On-the-Job
A combination of both	A combination of both
Other (specify):	Other (specify):
None	None

15 Do you know any entry level TVET courses being offered for the construction workforce? Yes / No.
If Yes, then please enlist them below:

Sr. No.	Name of TVET Course	Sr. No.	Name of TVET Course
1		6	
2		7	
3		8	
4		9	
5		10	

16 Do you think that individuals who possess TVET qualifications are poorly prepared for jobs in your company? Yes / No. If Yes, then tick the relevant reasons from below:

A: Middle Management Level	B: Workers Level
Obsolete technical knowledge	Obsolete technical knowledge
Lack of practical experience	Lack of practical experience
Poor literacy and numeracy skills	Poor literacy and numeracy skills
Poor work attitude (work ethics, absenteeism etc.	Poor work attitude (work ethics, absenteeism etc.
Lack of motivation	Lack of motivation
Other _____	Other _____

¹¹ Technical education refers to DAE – Diploma of Associate Engineers courses.

¹² Vocational Education and Training (VET) refers to education and training that focuses on delivering skills and knowledge required for specific industries. In other words, they are short courses.

13 What academic qualifications are required to apply for a job in your company:

A: Middle Management Level

☐ Matric ☐ Intermediate ☐ Bachelors ☐ Masters ☐ Technical Diploma

☐ Others (please specify): _____

B: Workers Level

☐ Primary ☐ Middle ☐ Matric ☐ Intermediate ☐ Bachelors ☐ Technical Diploma

☐ Others (please specify): _____

14 What is the existing training status of your employees?

A: Middle Management Level	B: Workers Level
Trained at Technical ¹¹ & Vocational ¹² Training (TVET) Institute (TEVTA or PVTC or Others)	Trained at TVET Holders (TEVTA or PVTC or Others)
Trained On-the-Job	Trained On-the-Job
A combination of both	A combination of both
Other (specify):	Other (specify):
None	None

15 Do you know any entry level TVET courses being offered for the construction workforce? Yes / No.
If Yes, then please enlist them below:

Sr. No.	Name of TVET Course	Sr. No.	Name of TVET Course
1		6	
2		7	
3		8	
4		9	
5		10	

16 Do you think that individuals who possess TVET qualifications are poorly prepared for jobs in your company? Yes / No. If Yes, then tick the relevant reasons from below:

A: Middle Management Level	B: Workers Level
Obsolete technical knowledge	Obsolete technical knowledge
Lack of practical experience	Lack of practical experience
Poor literacy and numeracy skills	Poor literacy and numeracy skills
Poor work attitude (work ethics, absenteeism etc.	Poor work attitude (work ethics, absenteeism etc.
Lack of motivation	Lack of motivation
Other _____	Other _____

¹¹ Technical education refers to DAE – Diploma of Associate Engineers courses.

¹² Vocational Education and Training (VET) refers to education and training that focuses on delivering skills and knowledge required for specific industries. In other words, they are short courses.

17 Which type of employees did your company hire during the last one year and how many (please state job titles out of the ones that you used in Q12):

A: Middle Management Level (Job Titles)	Number hired as replacement ¹³	Number hired against new jobs ¹⁴	Total

B: Worker Level (Job Titles)	Number hired as replacement	Number hired against new jobs	Total

18 How many vacant positions for middle management and workers does your company have at the moment?

Middle Management (Job Titles)	Number	Workers (Job Titles)	Number

19 What are the hard-to-fill jobs/positions (for example, see below) in your company (even if these are currently filled)?

A: Middle Management Level		B: Worker Level	
Supervisor / Diploma Engineer (DAE)		Mason	
Quantity surveyor		Welder	
Interior designer/decorator		Electrician	
Civil draftsman		Carpenter	
Quality Controller		Crane Operator	
Any other: _____		Bulldozer Operator	
		Scaffolding Worker	
		Any other: _____	

¹³ If your company hired against jobs that were previously filled.

¹⁴ If your company created new jobs due to expansion or other factors

A: Why Middle Management level jobs/positions are hard to fill?		B: Why Worker level jobs/positions are hard to fill?	
Competition from other employers		Competition from other employers	
Tough / Long working hours		Tough / Long working hours	
Lack of Interest		Lack of Interest	
Lack of required qualifications		Lack of required qualifications	
Lack of required work experience		Lack of required work experience	
Low salary		Low salary	
Low number of applicant with required skills		Low number of applicant with required skills	
Any other:		Any other:	

21 Please indicate, which of these occupations severely lack technical skills in your company?

Supervisor / Diploma Engineer (DAE)		Crane Operator	
Quantity surveyor		Bulldozer Operator	
Civil draftsman		Dumper Operator	
Mason		Electrician	
Carpenter		Wall and Floor Tile Fixer	
Painter and Decorator		Stonemason	
Plasterer		Any other:	
Any other:			

A: Does your company require any additional skills (see below) from existing employees? Yes / No.
If Yes, then tick the relevant skills below:

A: Middle Management Level		B: Worker Level	
English Literacy		English Literacy	
Occupational Safety		Occupational Safety	
Communication Skills		Communication Skills	
Teamwork Skills		Teamwork Skills	
Computer Skills		Computer Skills	
Conflict Resolution Skills		Conflict Resolution Skills	
Numeracy Skills		Numeracy Skills	
Work Ethics		Work Ethics	
Any other skills:		Any other skills	

22 B: Can you please suggest some training course(s) to meet the above mentioned skills needs:

Name of Training Course	Suggested Duration (in weeks)	Name of Training Course	Suggested Duration (in weeks)

23 What is the range of employees' salary in your company?
Middle Management: Rs..... to per month
Workers:Rs: to per day/ month

A: What type of training institute(s) would you prefer for the training of your employees?
☐ TEVTA Institutes ☐ PVTC Institutes ☐ CTTI - Construction Technology Training Institute – Islamabad
☐ Private Institute(s) ☐ Any Other National or International Institutes:

B: Can you please list a few high quality training providers/institute(s) or master trainers in the Construction Sector?

24

Training Providers / Institutes	Master Trainers

Does your company regularly receive information about available TVET courses for the construction sector? Yes / No.
If Yes, then how you receive it?
☐ Email ☐ Newspaper Ads ☐ Mail ☐ TV Ads ☐ Cable Ads
☐ Any other source _____

25

Does your company provide any in-house training to new employees? Yes / No
If Yes, then what kind of training(s) does your company provide to your employees?
☐ On-the-Job Training ☐ Off-the-Job Training
☐ Any other method(s) (please specify): _____

26

A: Will you be willing to relieve your workers for training outside your company? Yes / No
If Yes, then for how much duration? _____ (Weeks)

27

B: Will you be willing to co-finance training of your existing workers? Yes / No
If Yes, then will you be willing to pay their salary during the period of training? Yes / No

A: Will your company be willing to provide classroom based training to unemployed people? Yes / No, If Yes, then in which skills:

And for how many trainees: _____

28

B: Will your company be willing to offer on-the-job training for unemployed people? Yes / No
If Yes, then in which skills:

And for how many trainees: _____

A: Please select the trade name(s) listed below according to your requirements for new workers and also select their preferred duration along with training demand:

Trade Name	Preferred Duration (in Months)				Training Demand
	3	6	12	More than 12	
Quantity Surveyor					
Civil Surveyor					
Draftsman (Civil)					
Diploma of Associate Engineer					
AutoCAD (Civil)					
Plumber					
Mason					
Carpenter					
Electrician					
Welder					
Shuttering Carpenter					
Bulldozer Operator					
Crane Operator					
Floor and Tile Fixer					
Steel Fixer					
Painting and Decorating					

29

B: If you think that new courses need to be developed, then please enlist them below:

Trade Name	Preferred Duration (Months)	Training Demand

C: Please rate the course(s) development authorities/agencies on a scale of 1 to 5, where 1 is High and 5 is Low.

PBTE/TEVTA	PBTE/PVTC	PBTE/NAVTTTC	City & Guilds	NTB	Edexcel

Thank You

Annexure 2 –List of Focus Group Participants (Breakout Sessions)

Sr. #	Name of Participant	Company
Structural Finish Group		
1	Mr. Arshad Majeed Bhatti	Izhar Group
2	Mr. Ayub Sabir Izhar	Izhar Group
3	Mr. Afzal-ur-Rehman	Chairman CAP
4	Mr. Sajid Hussain	Rimtaj Industries
5	Mr. Amir Mahmood	Mishal Sania
6	Brig. Ghulam Haider	Chaudhry Construction
7	Mr. Iftikhar Ahmad	IfCo. Construction
8	Mr. Adeel Ahmad	IfCo. Construction
9	Mr. Saifullah Zia	Zoom Engineers
10	Mr. Zafarullah Khan	Zee Khan Associates
11	Mr. Akber Sheikh	Guarantee Engineers
Architectural and Construction Services Group		
1	Mr. Arif Ali Khan	Izhar Group
2	Mr. Ahmad Habib Kanwal	UniBuild
3	Mr. Tazeem Ahmad	Maaher Builders & Developers
4	Mr. Fawad Islam Chaudhry	Newcon Associates
5	Mr. Zahid Qureshi	Progressive Construction
6	Mr. Saeed Iqbal	Rockwell Corporation
7	Mr. Maqsood Ahmad	Fareed Co.
8	Mr. Sabbir Hussain Jawaaid	Iftikhar & Company
9	Mr. Rana Muhammad Tariq	Rana Construction
10	Mr. Mustafa Salam	ArcHouse Design
11	Mr. Usman Khalid	Channel Architects

GALLERY



(L to R) Ali Sarfraz (CEO, PSDF), Afzal ur Rahman (Chairman, CAP), Ghulam Habib (Vice Chairman, CAP-KPK), Ayub Sabir Izhar (Vice Chairman, CAP)



Participants filling out the questionnaire



Afzal ur Rahman (Chairman, CAP) and Ghulam Habib (Vice Chairman, CAP-KPK) filling out the questionnaire



Participants being given the questionnaire by PSDF representative



(L to R) CEO PSDF facilitating the focus group discussion on Architectural Finish and Construction Services

Lahore:

125 Abu Bakar Block,
New Garden Town, Lahore
Phone: 042-35913540-41
Fax: 042-35913539

Bahawalpur:

House No. 14-C4, Shabir Shaheed Road,
Model Town A, Bahawalpur
Phone: 062-2889934-35
Fax: 062-2889937

Toll Free: 0800-48627

Website: www.psdf.org.pk

Facebook: www.fb.com/punjabskillsdevelopmentfund

FUNDED BY:

