

**JOB UNCERTAINTY AND EFFECTIVE HUMAN RESOURCE  
MANAGEMENT FOR CONTINGENT WORKFORCE IN  
CONSTRUCTION PROJECTS IN PAKISTAN**

By

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A thesis is submitted in partial fulfilment of

the requirements for the degree of

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in

**Construction Engineering and Management**



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This is to certify that the

thesis titled

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*This thesis is dedicated to all the civil engineers, without whom this world would  
be a cave-land.*

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## **ABSTRACT**

In Pakistan, there is an abundance of highly skilled and hardworking workforce and they are also willing to work. The main problem however is, that there is a lack of a regulatory authority that may manage the human resources (HR), and provide them with proper training, education, safety awareness, skillset development, experience and general management. This poses a problem. The attitude of people is not supportive of such a vast amount of changes, hence, we have a large amount of skilled workforce, with little job opportunities, causing a lot of workforce to be contingent. The contingency causes the workers to work on jobs they are least interested in, and also gives an opportunity to the employers to misuse their rights and authorities. In this research, we are hoping to come up with a solution that, if implemented, will not only solve the problems with the contingent workforce by providing the right trainings, education and fellowships, but will develop them in an area where the human resource is required. We also hope to help with our findings to create the basis of a framework for a government administered regulatory authority that will decide how to develop the human resources into whatever market segments and also put an eye on the employers who may exercise their rights in such a manner that may put the workforce on contingency and general job insecurity risks. Also, the findings of this research will help the development of a framework for the regulatory authority to develop a HR Management plan that may be implemented throughout the public and private sectors that helps in the right and necessary development of Human Resource.

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## **INTRODUCTION**

### **1.1. PREAMBLE**

In general, normally the project owner or client is considered to be the sole beneficiary of the outcome of a project (Zwikael and Smyrk, 2014), whereas it is not necessarily true. A project's success is based on the role of certain people at the right time, with the desired inputs. If the fields of Human Resource Management (HRM) and Risk Management (RM) are to be drawn together. There is also context available where certain findings are worked out that may be considered beneficial for HRM in managerial practices, HR development, staffing techniques, staff training, etc. (Becker and Smidt, 2014). Also, certain ill practices, like risk identity threats and withholding certain information from key stakeholders or players in a project are not being counted for or there is any provision for such purpose (Van et al., 2014). Also, there is a need of applying the knowledge learned firsthand, from experience, by the active yet seasoned HR professionals in the market segment for positive results (Rynes et al, 2002). There is also a need to learn from seasoned HR management and risk management personnel operating in different and more developed markets and also suggest changes if necessary (Keegan et al., 2013). A lot of research is being carried out in this field, but for some reason, the South East Asia, specifically India and Pakistan is not being covered. Also, this research is slightly biased towards civil engineering Projects.

### **1.2. PROBLEM STATEMENT**

Pakistan is an emerging state in the South East Asia, with a lot of developing need and potential available for the development. Unfortunately, there is no such governing body to direct the workforce where to develop. This leads to a large skilled workforce availability with large need of

a job, whereas certain areas need people to work but there is no available workforce with the right skillset for the job. It is therefore a dire need of the time to address the issue with identification of factors that lead to a significant workforce and also to development a HR plan with certain training programs, fellowships, unions that will educate and train and most importantly, help in the development of workforce for the required tasks.

### **1.3. RESEARCH OBJECTIVES**

The objectives of our study are:

1. To identify and determine the risk factors kindred with the contingent workforce of Pakistani construction industry,
2. To evaluate and analyze the associated critical factors.
3. To formulate recommendations for effective HR Management of contingent workforce based on these critical factors.

### **1.4. SIGNIFICANCE OF STUDY**

The study is of important nature due to possible fact that a lot of professionals, possessing right qualifications and abilities are working on temporary jobs, or are not properly adjusted, or working under limited resources. The data will be collected from various ongoing projects at different locations so that we have an unbiased data from differing site conditions to cover as many different risks as possible so that our model is as much close to reality. This research can be used later to define and also help develop a solution needed to care for the contingency in workforce for better career development and hence, a general mind satisfaction of an employee working on some job.

## **1.5. THESIS OVERVIEW**

This thesis has been organized into five chapters.

Chapter 1 is ‘Introduction.’ It includes introduction to the research, problem statement, scope of the study and study objectives. It provides a general overview to the research.

Chapter 2 is ‘Literature Review.’ It explains the previous studies done concerning the research providing essential information related to Risk Management, Contingent Workforce, and Factors related to contingency of the workforce in general.

Chapter 3 is ‘Methodology’ of research. It explains how the research is conducted to obtain our research design.

Chapter 4 is ‘Data Analysis, Results and Discussion’ it covers the analysis of data after being collected, analysis and results according to our research objectives. It also discusses in detail how our objectives are achieved from using our analyzed data.

Finally, Chapter 5 is ‘Conclusions and Recommendations.’ Final conclusions and recommendations have been summarized in this chapter.

## LITERATURE REVIEW

### 2.1. INTRODUCTION

In project-based organizations “*knowledge, capabilities and resources are built up through the execution of major projects*” (Hobday, 2000) and that such organizations are most typically found where “*complex, non-routine tasks require the temporary employment and collaboration of diversely skilled specialists*” (DeFillippi and Arthur, 2002). Therefore many of these individuals working on the projects are contract workers who move among different employing firms (DeFillippi and Arthur 2002). Construction industry relies heavily on projects and often employs a large number of highly skilled contract workers who move between projects and employers; referred to by (Redpath, Hurst et al. 2008) as contingent knowledge workers. Becker and Smidt (2015) suggest that project-based organizations face unique challenges due to unstable and temporary nature of the work processes and environment which require specialized HRM practices and processes.

Based on their review of research into HRM in projects, (Huemann, Keegan et al. 2007) propose a model of HRM in projects which includes two separate HRM processes; one occurring at organizational level and other at project level. However, even this model assumes that the workforce is largely permanent and simply moved between projects until such time as they leave the organization. In these projects, a small number of key personnel may be employed by an operating organization and therefore be full-time permanent employees rotated amongst projects. However, a large part of the workforce on individual projects may be contract workers employed

specifically for a single project or as temporary specialists. (Storey, Quintas et al. 2002) identify that contingent workers are often used as technical experts and managers on projects and can be employed on either fixed-term or temporary contracts, moving beyond a contract workforce for lower skilled positions towards the use of contingent knowledge workers (Redpath et al., 2009). These temporary employees may be working side by side with core, ongoing, full-time, permanent employees (Storey et al., 2002).

Whilst (Burgess, Connell et al. 2006) argue that the growing use of a temporary workforce introduces the potential for unique HRM challenges, these have not as yet been the subject of extensive research and analysis. This research aims to analyze in depth the risks associated with a contingent workforce particularly focusing on what Redpath et al. (2009) call contingent knowledge workers, i.e. the people who are employed temporarily (Becker and Smidt, 2015).

### *2.1.1. Productivity in construction projects*

There are several studies which explore the relationship between motivational factors and construction workforce productivity around the globe but there are a scarcity of this work in the local environment of Pakistan. The construction industry plays an important role in the development of the economy of the country. Construction industry is an area influenced by many different factors such as labor, material, equipment and construction methods etc. Among these factors, human resources come first without which, other resources would not be utilized or transformed into productive use. Any improvement in labor productivity would contribute a great deal to the improvement of the overall productivity as identified by (Al-Saleh 1995). The motivation concept is generally defined as a composition of powers and mechanisms which help to direct human behavior in a desired manner, or with a more specific context it is described as

the all convincing and encouraging actions which help workers fulfill their tasks willingly and to come closer to project objectives. Motivation of the labor force is of paramount importance because the quality of human performance at the workplace depends largely upon motivation. That is, higher motivation brings higher productivity which is suggested by Kazaz et al (2008). According to most researchers there is a positive relationship between motivation and productivity. This means that when motivation increases, a rise in productivity is also expected. This reflects the belief that an increased motivation level causes an increase in productivity. Achieving the results demands that an adequate quality of inputs is provided in the first place and improved construction workforce productivity means a better input and this will help contractors to be more competent and profitable whilst executing their jobs (Khan, Umer et al. 2013).

### *2.1.2. Contingent workforce*

Flexibility in the use of labor is a central pillar of HRM in the context of downsized, streamlined and outsourced organizations. Definitions of what constitutes flexible work are notoriously ambiguous with several terms in common use (Pollert, 1991; IRS Employment Trends, 1997; Brown, 1995).

The growth in numbers of such workers poses challenges for the HR function. There has been a good deal of research examining the concept of flexibility within organizations. However, there is little research available which considers workers' experiences of contingent work, particularly those at managerial and professional levels, the elite of the contingent workforce (Mallon, 2000). The recent increase in construction development projects has definitely created a lot of market scope here, and it is safe to say that the pace of these projects continue to ensure the job availability for skilled work force. However, considering the political instability, and the intolerant attitude of governments towards previous government policies continue to add the risk at every construction projects that it might be

suspended by the next government, and the resources may be allocated to other ones. This causes the stakeholders on the projects to consider temporary employment of work force on the project (Allan 2002).

In almost every mega project, no matter how much the time period it may take to complete, the work force is mainly hired on temporary basis. This means any organization participating in the project, will automatically hire the work force contingently. That also means that the persons eventually employed by these organizations know about their contingency before they join for the project. This may give us a point to consider. Does a person willingly or unwillingly submits to being temporary or contingent? The answer may be yes and no at the same time. The market trends have been here for quite some time, and we have evolved into the fact that we may have to switch into many jobs before we find the right one to settle into. This is taught to us subconsciously from as soon as we are being educated and trained into getting a skill for a job. (Foley, Ruser et al. 2014).

Every person is unique, and everyone has different areas of interests, and to a person, he may find a topic more to the interest as compared to some other person. In an ideal world, a person learns and develops into skills he finds interesting, but it may not be wrong to assume that due to different factors, whether internal or external, he may not be able to get to a position that he has genuine interest in. There is also a possibility that due to some goal he wishes to achieve, may directly or indirectly interfere with his genuine interests. Also lack of information and a regulatory body or state funded organization may not provide him with the opportunity, awareness or exposure may affect him in choosing a path he truly belongs with. The attitude of the employer may also play an important part in contingent work force. Maybe the organization has developed certain policies that may only be fulfilled when the people hired for the job are temporary, and that's why, there



may be no well elaborated and thoroughly covered Human Resource policy available that ensures the proper implementation of rules and laws as per requirement of the state. There may also be a policy that companies or organizations may have a set of objectives too important in a manner that forces them to be ruthless and unforgiving towards considering permanent employment as compared to contingency. All these factors and questions answer our question about the attitude of the employees for being temporary and contingent. (Foley, Ruser et al.,2014).

There is little research available which considers workers' experiences of contingent work, particularly those at managerial and professional levels the elite of the contingent workforce. Mallon, (2000)

## **2.2. FACTORS AFFECTING THE HR PRACTICES**

### *2.2.1. View point of employers*

Employers are one of the most important members of any activity. They have full authority on running the company, they are the exact masterminds and think tanks of the creation and implementation of the policies of any organizations. The basic assumption is that project oriented companies have specific requirements regarding HRM (Huemann et al, 2007). Employers have to make sure that they achieve full productivity with minimal efforts in designated time period and in a sanctioned budget. Gareis (1990) suggests that project-oriented companies, for example, Construction Contractors or Construction Consultants, are ones in which the people of the organization:

1. Define “management by projects” as their organizational strategy;
2. Apply projects and programs for the performance of complex processes;

3. Manage a project portfolio of different internal and external project types;
4. Have specific permanent organizations like a project portfolio group, or a PM office to provide integrative functions;
5. View the organization as being project-oriented

.After all, they have personal, financial, political, mono political interests, and it is also to be remembered that they are here to make profit, the more the merrier. In mega project environment, they also have their reputation at stake, because they qualify for the bid of the projects solely on their past performance and experience, and by implementing certain policies and measures, they have to earn from the project. The main objective for an employer is to not only earn from a project, but also to ensure the maximum profits out of their efforts. Due to the lack of an effective regulatory authority, the game is mostly in the favor of the employers. They can bypass and loophole certain points and facts in order to maximize their profits and minimize their efforts. However, with the increased level of competition and their wish to expand their businesses in international markets, there is an emerging trend toward implementation of Human Resource management in their organizations. However, this trend is in its earlier stages and not yet fully matured to cover all the aspects of human resource management, and it also proves to be a hindrance in their goals to increase the profits and decrease the inputs.

### *2.2.2. View point of employees*

Employees are the worker bees of any organizations. They provide with the services, effort, inputs, tools, knowledge, experience and develop an organization in order to achieve the goals of the organization to achieve maximum profit, credibility, experience, status as well as many more facts.

The employee working in an organization definitely has hopes from the institution that other than the efforts for the jobs, the organization also owes to him in other manners. The employees work hard to get themselves into the criteria to advance in the hierarchy process, and they deserve benefits from their respective organizations. However, being contingent is not only related to this viewpoint. An employee may willingly be staying temporary in an organization, because of his goals, internal and external factors, job satisfaction, market trend, availability of jobs, competition, development of skill set, etc. an employee may not be bound by the ill practices of the employers to be temporary.

Now a view of worldwide practices. (Cable and Judge 1994) argue that a person may also be unsatisfied with a job if he believes the pay not to be sufficient. Pay is an important job attribute (Jurgensen, 1978) and has a significant influence on job attractiveness and subsequent job choice decisions (Rynes 1987). Research on the relationship between compensation systems and job attractiveness typically has examined the effects of pay level (Barber, 1991; Gerhart and Bretz Jr, 1994). However, components of pay systems other than pay level may affect the value job seekers place on organizational inducements. Although several studies have examined individuals' preferences for merit pay versus seniority-based pay (Beer and Gery, 1972; Heneman, 1992; Lawler, 1966), no research has investigated general pay preferences in total compensation packages. This appears to be an important omission because pay policies are commonly thought to be malleable, allowing organizations to implement pay systems that have a positive influence on organizational effectiveness (Lawler, 1981). If organizations knew the pay preferences of their ideal applicants, it might be possible to increase their attractiveness without affecting labor costs. Compensation systems may act as signaling devices to job seekers, affecting job and

organizational attractiveness by providing information about less visible organizational attributes (Gerhart and Milkovich, 1992; Rynes and Miller 1983).

Rynes (1987) suggested that *"compensation systems are capable of attracting (or repelling) the right kinds of people because they communicate so much about an organization's philosophy, values, and practices"* (p. 190). Thus, while some pay system characteristics may affect attraction directly, such that the majority of job seekers in a targeted selection pool interpret them similarly, certain types of individuals may attach different meanings and values to pay policies. Because business and human resource strategies appear to require certain types of employees, organizations may increase their effectiveness by designing pay systems that attract the right kinds of people (Rynes, 1987). It has been widely claimed that job seekers make search and choice decisions based on their perception of the match between their dispositions and organizational culture (Bretz, Ash et al., 1989; Judge and Bretz, 1992; Schneider, 1987; Turban and Keon, 1993). Although job seekers can acquire information about an organization's culture through a number of subtle sources (e.g., interviewers, product reputation), human resource systems are often directly observable (Judge and Bretz 1992). Furthermore, Judge and Bretz suggested that job choices based on fit may operate only when information about organizational values is salient to job seekers. Because pay systems are important and observable (Lawler, 1981), they are likely to be salient and may be especially important in job search decisions based on fit (Rynes, 1987). However, although certain relationships between dispositions and compensation attributes have been examined (Judge and Bretz, 1992; Bretz, Ash et al., 1989; Turban and Keon, 1993), there is a lack of systematic empirical research on the relationship between total compensation systems, pay preferences, and job attractiveness.

### *2.2.3. Trends of productivity and development*

Productivity in the construction industry is influenced not only by labor, but also by other factors such as equipment, materials, construction methods, and site management. While labor productivity is useful for contractors in bidding and monitoring field activities, total productivity is used by governmental agencies for specific programme planning and by the private sector for conceptual cost and time estimating on individual construction projects (Arditi et al., 2000).

### *2.2.4. Lack of training institutes and effective HR managers*

Human resource planning means anticipating imbalances between availability and organizational needs for all categories of personnel, and planning activities to ensure that the organization has the manpower it needs - in terms of both quantity and skills - at the time and place it needs it (Fabi and Petersen, 1992). Lack of training institute and effective HR Management and managers can also be prove to be an important factor in contingent workforce. Education and training are terms used to describe the set of planned learning activities designed to enable employees to acquire knowledge, skills and attitudes likely to maximize realization of the organization's objectives and facilitate employees (Kaplov, 1967) adaptation to their social and professional environment (Belanger et all, 1989). Many authors have studied the importance of training in PM. They generally agree that training contributes to improved performance, reduced production costs and increased satisfaction and motivation among employees (Thornberry, 1989, Alber, 1979, Schlick, 1988). Training also enables individuals to develop their full potential and thus helps them fulfil their career ambitions (Cannings-McNurlin, 1988). The workforce does not get any training programs, or workshops, or such activities that may broaden the scope of knowledge for them. Industry would rather see students trained as generalists rather than specialists, with industry

providing the necessary detailed instruction with on-the-job training. Course work should be constructed to provide emphasis on tools and their application, not theory. If possible, students should be given case studies that are applicable to their industry and interests. Education and training should foster the development of four types of skills: technical skills, human resource skills, business knowledge and transitional skills (Cannings and McNurlin, 1988; Fabi and Petersen, 1992). Helping the individual gain more self-knowledge and providing him or her with the tools to enable him or her to be more effective in relations with other team members. To do this, he proposes training consisting of information meetings focused on creating awareness of different styles of behavior at work. A general human resource development program aimed at forging stronger links between training and career progression seems preferable for training to be given by the organization, alone or jointly with an educational establishment (Kerzner, 1979; Mann, 1981). It seems important for the organization to play a leading role so that employees become socialized to the organization culture.

#### *2.2.5. Motivation amongst the Construction Workforce*

The relationship between motivation and productivity can be summarized as that productivity is directly linked to motivation, and motivation is, in turn, dependent on productivity. Suitable motivation of labor can be hypothesized as a key contributor to maximizing workers' productivity. The motivation concept is generally defined as a composition of powers and mechanisms which help to direct human behavior in a desired manner, or with a more specific context it is described as the all convincing and encouraging actions which help workers fulfill their tasks willingly and to come closer to project objectives. Motivation of the labor force is of paramount importance because the quality of human performance at the workplace depends

largely upon motivation. That is, higher motivation brings higher productivity. Even the smallest action that is positive or negative can have an effect on workers' attitude and motivation. The motivation, especially monetary rather than moral, has proven its influence on the productivity of workers, and the methods of motivating personnel to promote productivity have been demonstrated by Khan (1993) through applications of different human relations theories of motivation. Research on the relationship between motivation and productivity in the construction industry has been conducted over the last 40 years (Kazaz, Manisali et al. 2008).

### **2.3. RISK ASSOCIATED WITH HR PRACTICES FOR CONTINGENT WORK FORCES**

#### *2.3.1. Unwilling to “involve” into own qualification*

Wright and McMahan (1992) stated that a sustained competitive advantage can be provided as a source if these requirements are met

1. Add value to firm's production
2. The required skillset must be unique
3. Human resource should not be subject to replacement by automation
4. A collective effort of the employees have a unique value, and cannot be imitated by a substitute.

Others risks also involve Lack of quality control and check on employees and employers, risk associated with behaviors, lack of supervision from state owned authorities , departments and organizations, lack of trainings, incomplete education, absence of unions, lack of opportunities,

working under pressure from inner and outer factors, dispersement from the job or project (Wright and McMahan, 1992).

### 2.3.2. *At the end of the project*

It is at the end of a project that workers are most vulnerable to leaving the organization, especially if faced with a period of “*sitting on the bench*”. At the end of the project, core workers should be debriefed about their experiences and counselled about the future. If they do not have another project to go to straight away, they can do many things:

- Sitting on the bench.
- Going through training or other personal development.
- Going to the project management office to do technical and process development.

The choices made about what to do with project personnel at the end of the project need to be made in consultation with them to ensure employee well-being and procedural fairness in project allocation decisions, and from an organizational perspective to avoid valued personnel leaving. Peripheral workers also need to be counselled and debriefed. If they have performed well, the organization may like to retain them. The organization can advise them on training, even involve them in training, invite them to attend social activities, and work at keeping them with the network of potential peripheral workers (Huemann et al, 2007).

### 2.3.3. *Impact on employers credentials*

Globally, while there is increasing interest in the maturity of project-oriented companies and specific maturity models have been developed (PMI, 2003), only one considers personnel



management as a specific dimension of the project-oriented company (Gareis, 2005; Gareis 2007). This is all the more problematic when we consider issues of employee wellbeing. In the dynamic environment that characterize project-oriented companies, the HR configuration is constantly changing, as is the relationship between company and groups of employees. The challenges of ensuring employee well-being and their ethical treatment in rapidly changing organizational settings in which the transience of work-projects and the configuration of work-teams and even entire organizations is paramount is both important and overlooked. Case studies have indicated evidence that companies have problems in grasping the work and emotional situation of the individual (Soderlund and Bredin, 2006) and multirole assignments (Zika-Viktorsson et al, 2006) that may lead to burn out for younger employees that are not able to achieve an appropriate work-life balance (Huemann et al, 2004) or to manage the damaging consequences of role overload and role conflict. Furthermore, from an organizational and managerial perspective, failure to address the role conflict facets of project work may damage efforts to retain workers as both have been shown to cause job dissatisfaction and in extreme cases physical, psychological and behavioral job withdrawal and voluntary turnover (Rau and Hyland, 2002). Failure to consider the specific requirements of HRM in project-oriented companies may mean theorists overlook these issues, fail to consider the effects, positive and negative, of project-oriented work practices in individuals. (Hueman et al, 2007). In this environment, all these factors are yet to be established well because our current position is in a very backward area, and needs a lot of development to even get to this point. (Huemann et al, 2007)

#### *2.3.4. Impact on projects*

Projects and programs are temporary organizations (Garies, 2005, Turner & Miller, 2003, Sydov et al, 2004). Thus every time a new project or program is started, the human resource configuration of the organization must change. This might create pressure. It certainly impacts the work organization, and creates the need for new processes like assigning personnel onto projects, dispersement from projects, and processes for linking project assignments to careers. A person has multiple roles. A person can work in different projects at the same time, maybe even in different project roles. In one project he or she is a project manager, in another a project team member or a worker. Or a person can carry a role in a project and at the same time carry another role in the permanent organization. Projects have been described as temporary organizations to bring about change (Turner & Miller, 2003, Turner, 2007). Thus projects and programs entail greater uncertainty, creating a more dynamic environment with more discontinuity. In this dynamic environment in which the HR configuration is constantly changing, the challenges of ensuring employee well-being and ethical treatment of workers is important. (Huemenn et all, 2007)

#### *2.3.5. Health and Safety:*

In 2009 the construction industry was responsible for approximately 19% of the deaths which occurred in the United States as a result of injuries sustained in the workplace, while the rate of non-fatal injuries attributable to occupational hazards was 4.3 cases per 100 people, as per the report of US Bureau of Labor Statistics in 2010. Although statistics have since shown slight improvement, it is apparent that non-compliance with safety procedures and inadequately delivered training are among the key factors resulting in such a high rate of injury and fatality in this sector. Additionally, there are financial costs associated with inadequate provision of

training in the form of working days missed annually as a consequence of occupational injury. According to industry experts many of these injuries and fatalities would be completely avoidable if only good safety practice were to be observed. Poor training and poor retention of relevant knowledge among construction workers are two factors responsible for this high incidence of injury (Wilkins, 2011).

## METHODOLOGY

This chapter discusses the methodology adopted in current research . According to Saunders *et al.* (2007), research strategy describes how we are going to perform a study to achieve the desired objectives. The traditional way to gather data for research purposes are questionnaire surveys and interviews. Thus this study is in line with traditional method of data collection. Figure 3.1 shows a schematic view of the research methodology adopted in current study.

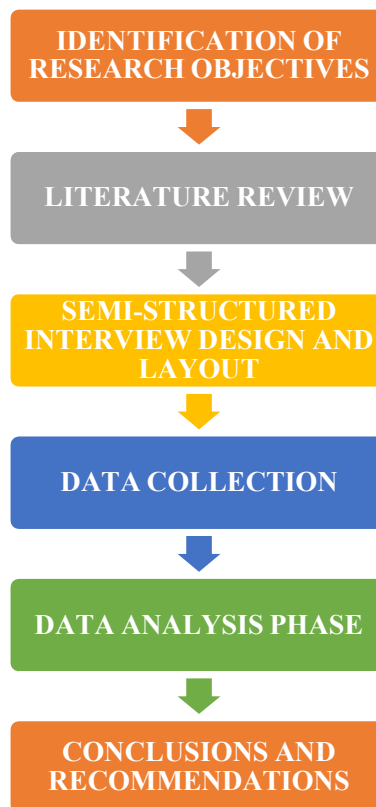


Figure 3.1: Methodology flowchart.

### 3.1. RESEARCH DESIGN

The objectives of this research have been established in Chapter 1. The methods for achieving

these objectives are systematically discussed in this chapter. Care is taken to ensure that a well-established relationship is developed between the collected data and research objectives. Therefore, the quality of data in this research is relevant, healthy and to the point.

### **3.2. Literature Searching**

A standard practice of literature review is the use of databases and keywords to sample both journals and articles (Keegan and Boselie, 2006; Ke *et al.*, 2009). Using the reputation of research journals and the impact rating of research paper also proves to be a useful technique (Lockett *et al.*, 2006; Glynn and Raffaelli, 2010). Following the same strategy for this research as used by Ullah *et al.*, (2016) for searching related literature, Google Scholar, Emerald Insight, Science Direct, Scopus, Taylor & Francis Online, and ASCE libraries were used. The search process consisted of semantic and keywords-based techniques. Keywords such as *Job Uncertainty*, *Human Resource Management*, *Employment*, *Practices*, *Construction Management*, *Contingent Workforce* and *Construction Industry* were used. Moreover, search was further restricted to the areas of “engineering”, “Human Resource Management”, “Project Management”, “Construction Management”, and “Employment”.

As a result, 107 unique research publications were retrieved. To avoid repetition in papers obtained from different journals, their titles and authors' names were carefully read and highlighted. An MS-Excel ® spreadsheet was created for this purpose and papers were arranged accordingly for avoiding repetition. After the required set of literature was retrieved, a detailed literature review was performed related to job uncertainty in the construction industry, and a list of factors contributing to job uncertainty was developed.

### 3.2.1. *Shortlisting the relevant literature*

The list of relevant literature was shortlisted to reduce the irrelevant papers. The titles of the research papers containing the phrases “Contingent Workforce”, “Temporary Staffing”, “Employment” and “Human Resource Management” were highlighted, and reorganized in a separate spreadsheet. These phrases were searched for in the title, abstract or main body of retrieved literature. As a result, 27 papers were found relevant as shown in Table 2.1.

### 3.2.2. *Factor identification*

With a thorough review of the shortlisted papers, a total of 64 factors were identified in the phase of literature review, as shown in Table 3.1. The “H” in Table 3.1 refers to high impact where as “M” and “L” refers to medium and low impacts respectively. The papers were reviewed chronologically to grasp a view of time period when the respective factors were discussed in the literature. To understand the impact of identified factors, the stakeholders were also studied, that were directly or indirectly affected due to job uncertainty.

Though an extensive search was performed for finding the relevant literature, keeping in view the humanly limitations, all the relevant literature cannot be examined. Thus there may be more literature available on the topic that has not been included in this study. Therefore, it is of paramount importance to note that the findings of this study are solely based on the data collected from specific sampling procedure.

Table 3.1: Factors identified in research papers

Factors	Research Papers																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1 Training and Development / Training Capacity	M	M		M	M		M	M	M		L		L		M	M		M		L	M	L	H	M	M		L
2 Trade Skills / Knowledge of Construction Tools and Machinery	M		L			M	H	M		M	M		L		M	M		M		L			H	M	L		L
3 Education / Knowledge / Experience	M	M				M	M	M		M					M	M		M		L	M		M	M	M		L
4 Job Pay Satisfaction	M								M			L	L		M	M	H				H		M			H	
5 Reward/Bonus/Appreciation/Recognition for extra ordinary performance at job															L						H		M		L	H	
6 Socio-Cultural Values / Foreign Nationals	M		H							L		M	M	L							M						M
7 Choice of Employees	H		M						M			M			M	M		M					H				
8 Job Productivity	H													M		M	M				H			M	M		H
9 Facilities to Employees (Residence/ Health Care/ Transportation etc.)	M												H	H	M						M			M		M	M
10 Working Attitude / Style /Behavior of Employees	M																	M		M	M		L		M	M	M
11 Decision Making at Work	L									M			L		L	M		M			M						
12 Legal awareness and know-how of Basic Human Rights	M					M		H		M		L	M					M									
13 Emotional Stability and Job Satisfaction	M	L											M		M	M					H			L			
14 Organizational Development (Personal/Social Relationship)													H		M		L			M			M	M	L		
15 Cost Management (Cost of Employment)	M								L							M		M					L	H			
16 Downsizing or Right Sizing	L			M												M						L			M		M
17 Requirement of Flexibility in Employee's skill Set	M			M									M		M	M								M			
18 Supervision	M						L									M						M		L			M
19 Language comprehension skills	M							H		L																	
20 Work Routines (Leaves/Sickness etc.)	M									M	M					M											M
21 Workers Health and Well Being											M				M		M									M	L
22 Being Self Employed				M								M		L										L			M
23 Employment Firms, Intermediaries, Third Party Employment Contractors				L										H	M									L			M
24 Human Rights Violation (Racism/Sexism/Curfews/Underpaid/Lack of													M	H		L											





4 8	Employing Firm Reputation																		M						M		
4 9	Intelligence		H								L									L				L			
5 0	Consciousness		H								L		M							L							
5 1	Globalization			L							L																L
5 2	World Events			L							L																L
5 3	Changing Consumption Patterns	L		L																							L
5 4	Process Re-engineering and outsourcing			L																					L		M
5 5	Loyalty to a Firm																			M							
5 6	Project Elements i.e. Size, Uniqueness, Degree of Innovation etc.																		M								
5 7	Compliance with Regulatory Bodies (OSHA, EPA, Local Codes etc.)																								M		
5 8	Performance Management/Monitoring Systems																									M	
5 9	Employee Recruitment and Selection																										M
6 0	Economic boom and bust			L							L																
6 1	Digital Revolution			L																							L
6 2	Cultural emphasis on Business Creation			L																							
6 3	Physical Conditions (Weather, Access, Security, Design Complexity, etc.)																								L		
6 4	Employees Turnover/Availability												L														

Table 3.2 summarize the description of table 3.1. Each individual factor listed in table 3.1 is organized according to its respective frequency, relative impact score, and weighted score. The cumulative weighted score is calculated by summing the individual weighted score of the factor, to be used in this study.

Table 3.2: Weighted score of identified factors

Sr. No.	Factor	Frequency (F)	Relative Impact	Qualitative Score for Relative Impact (R.I)	Weighted Score (W.S.= $F \cdot R.I / N \cdot 5$ )
1	Training and Development / Training Capacity	19	Medium	3	0.422
2	Trade Skills / Knowledge of Construction Tools and Machinery	16	Medium	3	0.356
3	Education / Knowledge / Experience	15	Medium	3	0.333
4	Job Pay Satisfaction	10	Medium	3	0.222
5	Reward/Bonus/Appreciation/Recognition for extra ordinary performance at job	5	High	5	0.185
6	Socio-Cultural Values / Foreign Nationals	8	Medium	3	0.178
7	Choice of Employees	8	Medium	3	0.178
8	Job Productivity	8	Medium	3	0.178
9	Facilities to Employees (Residence/ Health Care/ Transportation etc.)	8	Medium	3	0.178
10	Working Attitude / Style /Behavior of Employees	8	Medium	3	0.178
11	Decision Making at Work	7	Medium	3	0.156
12	Legal awareness and know-how of Basic Human Rights	7	Medium	3	0.156
13	Emotional Stability and Job Satisfaction	7	Medium	3	0.156
14	Organizational Development (Personal/Social Relationship)	7	Medium	3	0.156
15	Cost Management (Cost of Employment)	6	Medium	3	0.133
16	Downsizing or Right Sizing	6	Medium	3	0.133
17	Requirement of Flexibility in Employee's skill Set	6	Medium	3	0.133
18	Supervision	6	Medium	3	0.133
19	Language comprehension skills	3	High	5	0.111
20	Work Routines (Leaves/Sickness etc.)	5	Medium	3	0.111
21	Workers Health and Well Being	5	Medium	3	0.111
22	Being Self Employed	5	Medium	3	0.111

23	Employment Firms, Intermediaries, Third Party Employment Contractors	5	Medium	3	0.111
24	Human Rights Violation (Racism / Sexism / Curfews / Underpaid / Lack of Privacy / Human Smuggling / Sex Trafficking/Forced Labor etc.)	3	High	5	0.111
25	Management Support and Attitude	5	Medium	3	0.111
26	Welfare to workers	5	Medium	3	0.111
27	Specific visa provisions for the Employers	4	Medium	3	0.089
28	Role of Labor Unions in the Market	4	Medium	3	0.089
29	Experimenting with new trends/ Openness to New Experience	4	Medium	3	0.089
30	Market Conditions and Trends /External Conditions	4	Medium	3	0.089
31	Project Risk Management	4	Medium	3	0.089
32	Communication	4	Medium	3	0.089
33	Relations in-between colleagues/ Team Member Coordination	4	Medium	3	0.089
34	Project Management (Management Labor Relations / Working Strategies)	11	Low	1	0.081
35	Age	2	High	5	0.074
36	Career Planning/Self Improvement or Upgrade	2	High	5	0.074
37	Competency and Capability of Subcontractors in understanding legal obligations	3	Medium	3	0.067
38	Effective OHS Policy Implementation	9	Low	1	0.067
39	Organizational Structure / Internal Conditions	3	Medium	3	0.067
40	Volunteerism	3	Medium	3	0.067
41	Effective Monitoring of OHS	7	Low	1	0.052
42	Hesitation in reporting issues and incidents	2	Medium	3	0.044
43	Reward/motivation for best results in OHS	2	Medium	3	0.044
44	Competition	2	Medium	3	0.044
45	Substance Abuse	2	Medium	3	0.044
46	Insurance Policies	2	Medium	3	0.044
47	Compliance to Employment Policies	2	Medium	3	0.044
48	Employing Firm Reputation	2	Medium	3	0.044
49	Intelligence	4	Low	1	0.030
50	Consciousness	4	Low	1	0.030
51	Globalization	3	Low	1	0.022
52	World Events	3	Low	1	0.022
53	Changing Consumption Patterns	3	Low	1	0.022
54	Process Re-engineering and outsourcing	3	Low	1	0.022
55	Loyalty to a Firm	1	Medium	3	0.022
56	Project Elements i.e. Size, Uniqueness, Degree of Innovation etc.	1	Medium	3	0.022

57	Compliance with Regulatory Bodies (OSHA, EPA, Local Codes etc.)	1	Medium	3	0.022
58	Performance Management/Monitoring Systems	1	Medium	3	0.022
59	Employee recruitment and Selection	1	Medium	3	0.022
60	Economic boom and bust	2	Low	1	0.015
61	Digital Revolution	2	Low	1	0.015
62	Cultural emphasis on Business Creation	1	Low	1	0.007
63	Physical Conditions (Weather, Access, Security, Design Complexity, etc.)	1	Low	1	0.007
64	Employees Turnover/Availability	1	Low	1	0.007

Organized in order of frequency of appearance in the available research, the factors are listed accordingly. The factors are rated according to order of appearance as well as its impact in the research papers. A cumulative score is worked out for the factors, as shown in Table 2.3. The methodology adopted by Ullah et al., (2017), where a limit of 60% cumulative score is instated has been used. Following similar procedure, a limit of 50% of weightage of cumulative score has been set for this study. Reason for lower limit of factor cut-off is to capture more influence of the factors in overall study. A total of 15 factors that were included in the questionnaire contributed to 50% cumulative score of the Weighted Score or Relative Importance Index (RII).

Table 3.3 shows the temporal analysis of these factors and represents their year of identification in light of the reviewed literature.

Table 3.3: Temporal analysis of the identified factors

#	Factor	Year																							
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1	Training and Development / Training Capacity	✓			✓	✓		✓		✓	✓		✓	✓	✓	✓	✓	✓					✓	✓	✓
2	Trade Skills / Knowledge of Construction Tools and Machinery	✓			✓			✓		✓			✓	✓			✓	✓	✓				✓	✓	✓
3	Education / Knowledge / Experience	✓			✓	✓		✓					✓	✓			✓	✓	✓	✓					✓
4	Job Pay Satisfaction			✓		✓				✓			✓	✓			✓	✓	✓	✓				✓	
5	Reward/Bonus/Appreciation/Recognition for extra ordinary performance at job				✓								✓				✓		✓	✓					
6	Socio-Cultural Values / Foreign Nationals							✓										✓	✓		✓		✓	✓	
7	Choice of Employees	✓			✓					✓			✓	✓			✓			✓		✓			
8	Improving Productivity			✓		✓		✓					✓		✓		✓	✓	✓		✓				



## Pilot Survey

A pilot survey is conducted in the form of a questionnaire, where a Likert scale of one to five to measure the importance of a certain factors that are related to our problem statement. A survey was conducted with the contents being the identified factors, in which their relative order of importance being rated in a Likert scale. The target sample space was professionals in the construction industry of Pakistan working in temporary position. The parameters of the sample space were that the candidates had a graduation degree, ranging from fresh graduates to senior experienced employees who had retired from their first services and were employed temporarily over specific jobs. Two different questionnaires were used for workers' perspective and managerial perspective respectively. The factors as shown in Table 3.4, were concluded for the Pilot Survey Questionnaire.

Table 3.4: Relative factors for pilot survey

Factor	Average Score
How does Reward, Bonus, Appreciation and Recognition for extra ordinary performance at job help to motivate the workers	4.2
Education and Qualification, Knowledge about the Work and the related Experience in the Field	4.16
Trade Skills and the Knowledge of Construction Tools and Machinery	4.06
Working Attitude, Style of work, and behavior of Employees during the work time	3.98
Employer firms providing facilities to Employees (Residence/ Health Care/ Transportation etc.)	3.9
Training and Development of a worker and his/her Training threshold	3.72
Job Pay Satisfaction of a worker for a job he is employed for	3.72
Improving Productivity in the job	3.58
Decision Making at Work if needed at lower ends	3.42
Organizational Development of the employee as well as the employer (Personal/Social Relationship)	3.42
Choice of Employees during the selection phase and during short listing	3.24
H.R. Strategies of the employer organizations	3.16

Cost Management policies of the employer firms (Cost of Employment)	3.16
Legal awareness of the workers and knowhow of Basic Human Rights	3.02
Socio-Cultural Values for the Foreign Nationals working in different countries.	2.98

For each of the 14 factors considered to be relevant in construction industry of Pakistan, the response is recorded on a Likert scale, so that not only the respondents' importance ranking can be analyzed but some real time data regarding prevalent practices on the factors can also be studied.

### **Secondary Survey**

A secondary phase of data collection in the form of semi-structured interviews was conducted to work out the relevance and impact of each factor. The interview responses were analyzed qualitatively, with the discussion translated on a Likert scale for both the relevance and impact.

### **3.3. SAMPLE SELECTION AND SAMPLE SIZE**

To ensure realistic results, a sample should be a true representative of population. The sample chosen for this study comprises of candidates with graduation degree, appointed at managerial position in their respective organization, with a significant level of influence over the hiring of staff.

As per Hertzog (2008) and Van Belle (2011), the number of interviews for a healthy dataset should be between 10 and 40 respondents. For this research, a total number of 43 interviews were conducted, fulfilling the requirement of a healthy sample size.



### **3.4. DESIGN OF SURVEYS**

Using the methodology of Babar et al. (2017), semi-structured interviews were carried out. The interviewees had to rate the factors affecting job uncertainty by degree of relevance and their impact. The interview questions developed for this research study consisted of three major parts.

First part was designed to gather the demographics of the respondent like name, experience, employer's details, etc. Second part contains the relevance of factors. Third part consists of the impact of the identified factors on a Likert scale of 1 to 5, with 1 being very low and 5 being very high.

### **3.5. DATA ANALYSIS TECHNIQUES**

MS Excel ® and SPSS-17 ® are used to analyze the data. Following statistical techniques are used for analysis.

#### *3.5.1. Test for Reliability*

Cronbach's Coefficient Alpha method is used to measure the internal consistency (reliability) of data. This method is commonly used when questions are asked on Likert scale. If Cronbach's Coefficient Alpha value is greater than 0.7 (Li, 2007), the dataset can be considered reliable for study.

#### *3.5.2. Test for Normality*

An evaluation of the data normality is a pre-condition for use of numerous statistical tests. It is performed to know whether data is normally distributed or not, i.e. is the data parametric or non-

parametric in nature. Shapiro-Wilk test is considered a more thorough examination of normality for datasets of about two thousand (2000) elements or less. For the dataset more than 2,000 values Kolmogorov-Smirnov test is more suitable. Hence considering the sample size, for this study Shapiro-Wilk test is performed to check the data for normality. For the dataset to be considered as normally distributed, the significance value should be larger than 0.05.

### 3.5.3. *Kruskal-Wallis Test or one-way ANOVA*

The Kruskal-Wallis test and one-way ANOVA are used to determine whether three or more independent groups (client, consultant and contractor) are identical or diverse on some variable of interest (Belzer et al., 2014, Jamal et al., 2014). It is more appropriate for finding statistical evidence of inconsistency or differences in perception, using mean values or indices, of various groups. The Kruskal-Wallis test is used for non-parametric data whereas one-way ANOVA is used for parametric data (Egan et al., 2017; Salazar-Alvarez et al., 2014). The results are tested against the significance limit of 0.05. Significance value of more than 0.05 means that all the stakeholders have similar perception about the issue and vice versa.

## **3.6. SUMMARY**

This chapter illustrated in detailed phases, the research methodology adopted for this study. Sample size selection criteria & questionnaire development process are also elaborated comprehensively. The statistical tests applied on the dataset received from questionnaire responses are also discussed. The results and findings of these tests and techniques are discussed in subsequent chapter.

## **DATA ANALYSIS, RESULTS AND DISCUSSION**

The methodology adopted for the data collection and analysis in current research is described below.

### **4.1. SURVEYS' RESULTS**

#### *4.1.1. Pilot Survey*

Two different questionnaires were developed for the purpose of pilot survey, one to get a grasp of managerial perspective of relevance to the field and the second for employee's perspective. The classification of factors for each questionnaire was done in collaboration with field experts, who helped in the differentiation of the factors according to relevance to managers and employees. The reason to conduct two different questionnaires was to get a grasp of viewpoints of both sides of construction industry: managerial and employees or workers. The data gathered revealed that all the short-listed factors have a significant importance to construction industry of Pakistan. As a result, factors were classified according to their relevance, thus getting two different factor lists for our questionnaire. A total of 118 responses were received from both questionnaires. Factors used in the managerial perspective questionnaire with their average score on Likert scale are listed in Table 4.1. Factors used in the workers or employee's perspective questionnaire with their average score on Likert scale are given in Table 4.2. Figure 4.1 shows the participation breakdown of employees and managers in the survey.

Table 4.1: Average score for the individual factors in managerial perspective

Factor	Average Score
How does Reward, Bonus, Appreciation and Recognition for extra ordinary performance at job help to motivate the workers	4.2
Education and Qualification, Knowledge about the Work and the related Experience in the Field	4.16
Trade Skills and the Knowledge of Construction Tools and Machinery	4.06
Working Attitude, Style of work, and behavior of Employees during the work time	3.98
Employer firms providing facilities to Employees (Residence/ Health Care/ Transportation etc.)	3.9
Training and Development of a worker and his/her Training threshold	3.72
Job Pay Satisfaction of a worker for a job he is employed for	3.72
Improving Productivity in the job	3.58
Decision Making at Work if needed at lower ends	3.42
Organizational Development of the employee as well as the employer (Personal/Social Relationship)	3.42
Choice of Employees during the selection phase and during short listing	3.24
Cost Management policies of the employer firms (Cost of Employment)	3.16
Legal awareness of the workers and know-how of Basic Human Rights	3.02
Socio-Cultural Values for the Foreign Nationals working in different countries.	2.98

Table 4.2: Average score for the individual factors in employees' perspective

Factors	Average Score
How does Reward, Bonus, Appreciation and Recognition for extra ordinary performance at job help to motivate the workers	4.19
Training and Development of a worker and his/her Training threshold	3.96
Employer firms providing facilities to Employees (Residence/ Health Care/ Transportation etc.)	3.96
Job Pay Satisfaction of a worker for a job he is employed for.	3.9
Emotional Stability and Job Satisfaction with a job	3.81
Education and Qualification, Knowledge about the Work and the related Experience in the Field	3.79
Organizational Development of the employee as well as the employer (Personal/Social Relationship)	3.74
Legal awareness of the workers and know-how of Basic Human Rights	3.68
Decision Making at Work if needed at lower ends	3.5

It is evident from the tables 4.1 and 4.2 that both the managers and the employees rate financial concerns as one of the important factors in selecting a job. However, it can also be observed that

where the managers put the factors related to education, knowledge, training and productivity improving techniques with a higher score, the same factors do not add up to the same significance in employee's perspective. The employees rate the factors relevant to employer's liabilities like providing facilities and financial incentives at a higher score as compared to the managerial perspective. These differences can show us the contrast in the opinions of both the managers and the employees of the construction industry of Pakistan.

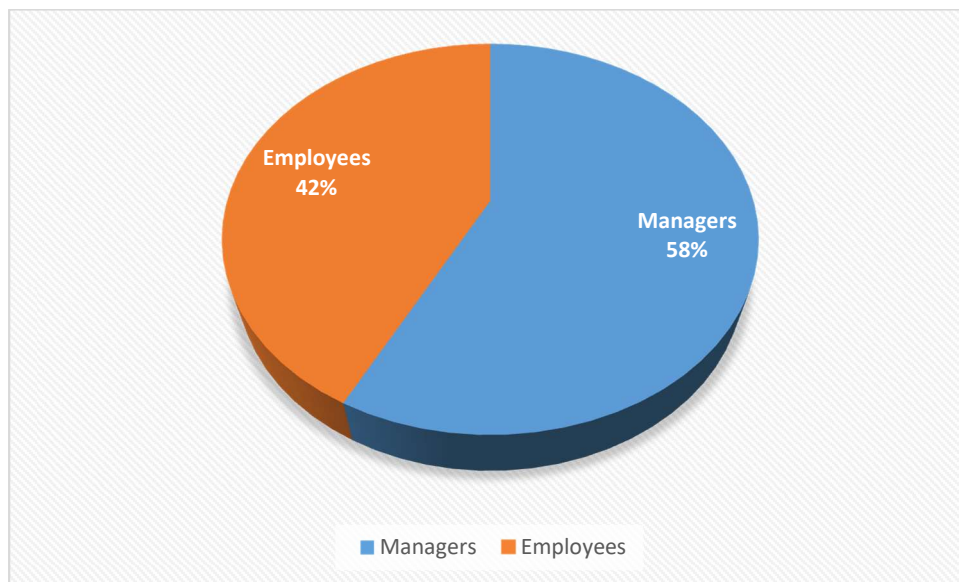


Figure 4.1: Participation of the employees and the managers in the pilot survey

#### 4.1.2. *Semi-Structured Interview*

A secondary phase of data collection was in the form of semi-structured interviews, conducted to work out the relevance and impact of each factor. The interview responses were analyzed qualitatively with discussion translated on a Likert scale for both relevance and impact. A total of 120 people working at managerial positions in their respective organizations were contacted. Out

of the total, 43 individuals responded to give a response rate of 35%. Figure 4.1 shows the participation of the previously established groups. Further, a secondary breakdown percentage is provided in Figure 4.2 to reveal the percentages of the three key project stakeholders' representatives: client, contractor and consultant.

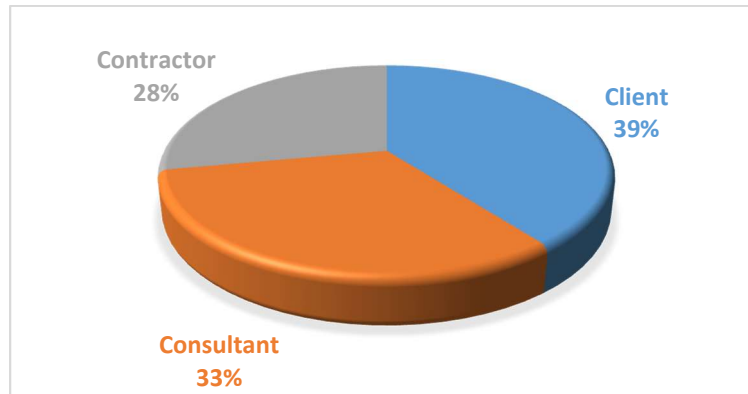


Figure 4.2: The individual participation of all the stakeholders of construction industry

The reason for a lower response rate can be interpreted as the reservations and hesitation of organizations to discuss their human resource policies and procedures. Table 4.3 shows the results of the interview conducted. The results are also tabulated in a bar chart as shown in Fig. 4.3.

Table 4.3: Results of semi structured interviews

Sr. No	Factors	Average Probability of Success	Average Impact Factor	Cumulative Score (=Probability x Impact Factor)
1	Education and Qualification, Knowledge about the Work and the related Experience in the Field	0.75	4.35	3.26
2	Trade Skills and the Knowledge of Construction Tools and Machinery	0.7	3.88	2.72
3	Training and Development of a worker and his/her Training threshold	0.66	3.86	2.55
4	Job Pay Satisfaction of a worker for a job he is employed for.	0.64	3.95	2.53

5	Working Attitude, Style of work, and behavior of Employees during the work time	0.66	3.72	2.46
6	Organizational Development of the employee as well as the employer (Personal/Social Relationship)	0.62	3.47	2.15
7	Reward, Bonus, Appreciation and Recognition for extra ordinary performance at job help to motivate the workers	0.6	3.53	2.12
8	Emotional Stability and Job Satisfaction with a job	0.6	3.53	2.12
9	Improving Productivity in the job	0.61	3.42	2.09
10	Employer firms providing facilities to Employees (Residence/ Health Care/ Transportation etc.)	0.57	3.35	1.91
11	Decision Making at Work if needed at lower ends	0.54	3.05	1.65
12	Choice of Employees during the selection phase and during short listing	0.51	3.16	1.61
13	Legal awareness of the workers and know-how of Basic Human Rights	0.46	2.65	1.22
14	Socio-Cultural Values for the Foreign Nationals working in different countries.	0.44	2.6	1.14

The figures demonstrated in the Table 4.3 further strengthens the hypotheses that the managers and employers of the construction industry in Pakistan rate the factors of education and qualification, knowledge and trade skills for work, training and development higher than the factors relevant to employer's liabilities. We can also see that there is a significant apprehension of factors relevant to working attitudes of the prospective employees, improving productivity at job, emotional stability, organizational development for both the employer and the employee and the job pay satisfaction by the interviewees. However, the factors of socio-cultural values and awareness of legal rights and statutes for workers or employees have been rated last, whereas a significant importance on these factors is observed in the literature reviewed for this study. Fig. 4.3 shows a statistical representation of the results of the interviews below.

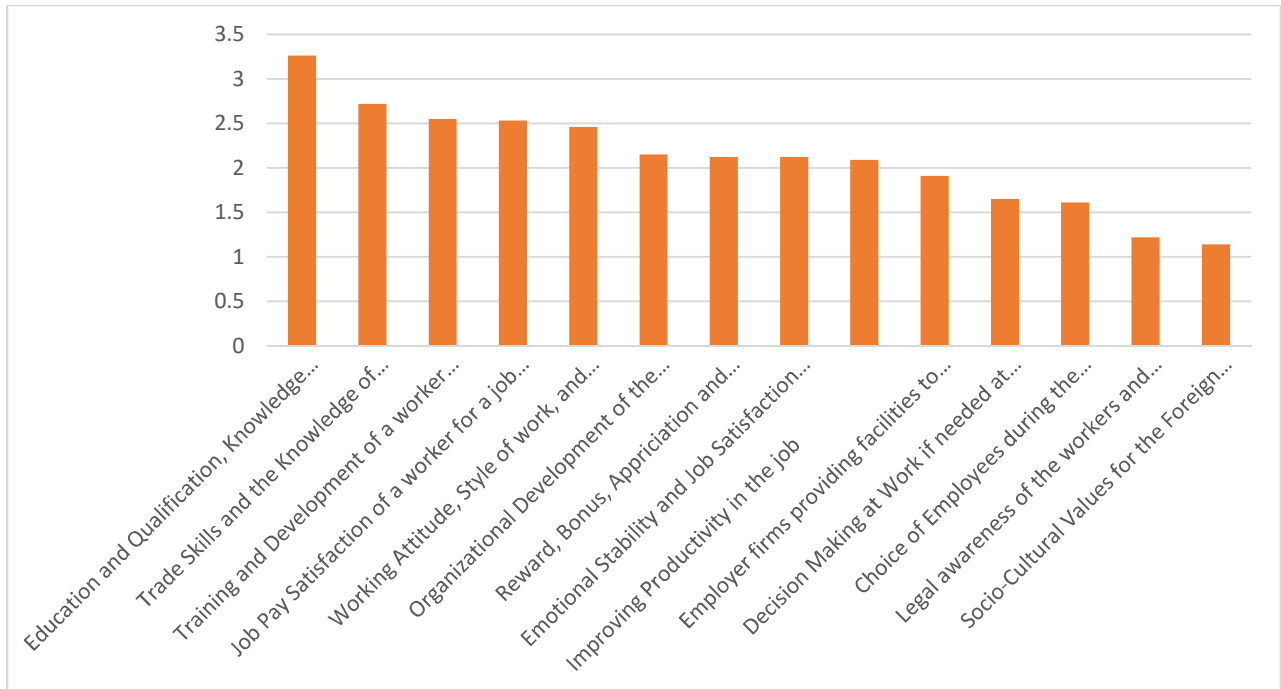


Figure 4.3: Cumulative score of individual factors

#### 4.1.3. Test Results:

Following are the results of the tests applied on the data acquired through the structured interviews

##### a. Test for reliability of Data (Cronbach's Alpha Test)

Table 4.4 shows the results of Cronbach's Alpha test applied on the data set showing the relevance of the job uncertainty factors in the construction industry of Pakistan, whereas Table 4.5 shows the results of test applied on the data set showing the relative impact of these factors.



Table 4.4: Reliability Statistics for Relevance of the factors

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.927	.923	14

Table 4.5: Reliability Statistics of Impact of the factors

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.904	.898	14

Reliability test results with a Cronbach's Alpha coefficient of any value higher than 0.7 is considered reliable. As per these results, with a Cronbach Alpha coefficient of 0.927 for relevance and 0.904 for impact of the factors, it can be deduced that the data gathered in both data-sets is fairly reliable, and can be used for the research.

b. Test for normality of Data (Shapiro Wilk Test)

Table 4.6 shows the results of Shapiro Wilk's test applied on the data set showing the relevance of the job uncertainty factors in the construction industry of Pakistan, whereas Table 4.7 shows the results of test applied on the data set showing the relative impact of these factors.

The coefficient of 0.05 and above in the Shapiro Wilk Test can deduce that the individual inputs are normally distributed. The results show that apart from the value of factor 9 i.e. improving productivity at job (0.05), factor 10 i.e. Employers providing facilities to the employees (0.092) and factor 11 i.e. Decision making at the lower ends (0.116) in the relevance of factors to Pakistani construction industry data, all values fail to exceed the

barrier of 0.05. Therefore, with these exemptions, the data cannot be considered to be normally distributed for both data sets, and is not normally distributed overall. Hence, Kruskal-Wallis Test is used for further analysis.

Table 4.6: Normality Test for relevance of factors

**Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Factor 1	.244	43	.000	.909	43	.002
Factor 2	.295	43	.000	.830	43	.000
Factor 3	.217	43	.000	.825	43	.000
Factor 4	.119	43	.135	.935	43	.017
Factor 5	.186	43	.001	.898	43	.001
Factor 6	.155	43	.011	.940	43	.026
Factor 7	.138	43	.040	.935	43	.017
Factor 8	.277	43	.000	.894	43	.001
Factor 9	.137	43	.042	.948	43	.050
Factor 10	.125	43	.088	.955	43	.092
Factor 11	.131	43	.060	.958	43	.113
Factor 12	.163	43	.006	.905	43	.002
Factor 13	.138	43	.038	.945	43	.039
Factor 14	.171	43	.003	.921	43	.006

a. Lilliefors Significance Correction

Table 4.7: Normality Test for impact of factors

**Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Factor 1	.283	43	.000	.849	43	.000
Factor 2	.250	43	.000	.861	43	.000
Factor 3	.294	43	.000	.767	43	.000
Factor 4	.219	43	.000	.855	43	.000
Factor 5	.181	43	.001	.889	43	.001
Factor 6	.194	43	.000	.912	43	.003
Factor 7	.215	43	.000	.904	43	.002
Factor 8	.275	43	.000	.856	43	.000
Factor 9	.267	43	.000	.783	43	.000
Factor 10	.293	43	.000	.860	43	.000
Factor 11	.194	43	.000	.912	43	.003
Factor 12	.219	43	.000	.859	43	.000
Factor 13	.246	43	.000	.855	43	.000
Factor 14	.228	43	.000	.890	43	.001

a. Lilliefors Significance Correction

c. Kruskal-Wallis Test

The Kruskal-Wallis test is much less sensitive to outliers. The null hypothesis ( $H_0$ ) for the test is that the means of variables are equal and is rejected if the result is significant. Table 4.8 shows the results of Kruskal-Wallis test applied on the data set showing the relevance of the job uncertainty factors in the construction industry of Pakistan, whereas Table 4.9 shows the results of test applied on the data set showing the relative impact of these factors.

Table 4.8: Kruskal-Wallis Test results for relevance of the factors

Test Statistics <sup>a,b</sup>														
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13	Factor 14
Chi-Square	6.416	1.796	1.893	3.244	3.532	.619	2.038	.311	1.887	.737	2.896	5.751	3.490	2.227
df	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.040	.407	.388	.198	.171	.734	.361	.856	.389	.692	.235	.056	.175	.328

a. Kruskal Wallis Test  
b. Grouping Variable: Organization Type

Table 4.9: Kruskal-Wallis Test results for impact of the factors

Test Statistics <sup>a,b</sup>														
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13	Factor 14
Chi-Square	1.251	.672	.140	2.100	3.177	2.042	3.473	.408	1.380	.804	3.597	2.771	.312	.403
df	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.535	.715	.933	.350	.204	.360	.176	.815	.501	.669	.166	.250	.855	.818

a. Kruskal Wallis Test  
b. Grouping Variable: Organization Type

Apart from the factor 1 of the relevance to the Pakistani construction industry dataset i.e. Appreciation and Recognition of work and reward for extra-ordinary effort to improve productivity at work, , where the Sig. value is 0.04, all the values exceed the barrier of 0.05. Therefore, it can be assumed that the results of both datasets are not biased in between individual stakeholders, and they agree on the same concerns of job uncertainty factors.

## 4.2. ANALYSIS AND DISCUSSION

### 4.2.1. *Education and Qualification, Knowledge about the Work and the related Experience in the Field*

A construction engineer uses the knowledge of construction tools and techniques, experience in construction projects, and knowledge of engineering design and practices to create optimum design concepts and details for a construction project to help identify the issues and to execute the construction activities in a safe, economical, efficient, and timely manner to maximize the quality and value of the project to the owner and a greater use for the society. The educational programs must convey core knowledge about the following four elements: scientific fundamentals, construction materials, construction-applied resources, and field construction operations to facilitate managers (Tatum, 2010; Sacks and Pikas, 2013).

Han et al. (2008) point out concerns that while employing a new workforce for a construction project, multiple factors like lack of education, experience, regional knowledge of construction practices may cause problems, specifically in the case of foreign nationals. Concerns about the lack of knowledge, specifically for safety and well-being in a foreign country with higher technological advantages and usage of specialized equipment are also discussed. Lack of qualification as well as having inadequate experience for a good stable job adds up to inadequate knowledge (Rassuli, 2005).

Analyzing the interview results, it is strongly implied that qualifications, knowledge and experience contribute to job uncertainty in construction industry of Pakistan. One of the interviewee stated that *“In a building structure project, a Project Manager either hires four low-experienced graduate engineers at a fairly lower wage rate for individual tasks to monitor the*

*construction activities of steel fixing, concreting, electrical or mechanical works, or we hire one highly experienced supervisor at a higher cost, who, though does not have a higher education, but have ample experience in executing building works, and has a thorough understanding of BOQ items and SOPs. In such a case, it comes to personal preferences, like I would opt for hiring four individuals in the cost of one. This way I can assure a better quality of work, because a person specializing in a specific task can assure a better job as compared to a person who has to divide his abilities for multiple tasks. Additionally, I also get a benefit to reduce project cost by hiring multiple people at a lower cost.”* Another interviewee said that *“I would always keep the educational background above all others, because education gives a chance of understanding the methodology for the works with a deeper impact. It is true that enough experience may give an edge to improve productivity and workmanship, but to understand that why that work needs to be executed in a specific manner, experience cannot beat education. Therefore, for achieving quality of works, we need educated people with a specific skillset. This will also give us an edge over achieving progress, because we learn tested techniques described in a proper manner in the classroom. This knowledge must be polished by first-hand experience, only then you can prove to be a worthy candidate for a job”*.

Similarly, all the interviewees show a great deal of concern when it comes to education, qualification, knowledge and experience of a potential candidate. This argument can be defended by our results, where this factor managed to secure the highest mean score of 3.26.

#### *4.2.2. Trade Skills and the Knowledge of Construction Tools and Machinery*

For hiring a workforce for a complex construction project, specifically in the case of hiring a foreign worker at a work site, it is a point of concern for the worker to possess specific

knowledge for using a specific piece of construction equipment. Additionally assuring the safe and intended use for that tool or machine follows a strict health and safety protocol (Connell et al., 2009). A site supervisor or in-charge also have to ensure a good quality system of communication for providing proper protocol to execute a task. He also has to create a system in which, someone who puts an extra-ordinary effort in work should be complimented in a manner, so that the other workers can be motivated for similar effort input. Additional he has to set goals and targets for the workers, and give incentives for a timely completion to further motivate his workers for providing healthy progress(Zwikael and Smyrk, 2015).

Having knowledge about tools and productivity techniques for a specific job is also considered as a trait of intelligence in a prospective worker to be hired (Behling, 1998). Learning trade skills by mature workers, by employing them as mentors to younger workers, who in time, have learned to improvise productivity by adopting a set of skills in a specific order can also be used to motivate young workers into giving a productive work routine (Shultz, 2001). However, for the question of job uncertainty, prospective employers adopt a technique to hire workforce through a flexible employment, i.e. employing people with specific knowledge of tools and techniques at a specific time in a project, to get a specific task executed, instead of employing them permanently(Mallon and Duberley, 2000).

The interviewees also showed a high level of relevance to this argument, with a significant level of impact to the construction industry of Pakistan. One of the interviewees argued that *“I cannot employ an electrician to do a plumber’s job, only on the basis that he also have been through similar projects before, and he would have developed a knowledge of how plumbing works. If I need an electrician to check the cable layout, he is the man for the job. If I need a plumber to fix*

*the resilient issues with the plumbing lines of a building, he cannot be substituted by a mason or an electrician”.*

Trade skills and knowledge of construction tools and machinery does prove to be an important trait in a prospective employee, with a significant influence in the construction. How good a person is in employing this skill-set, sure does proves to be an important factor in managing job security.

#### *4.2.3. Training and Development of a worker and his/her Training threshold.*

Having inferior or no training regarding the construction operational, health and safety does prove to be a risky gamble in harsh construction environment. While dealing with a vast workforce, with majority being foreigners and aliens to an environment, the lack of safety training and improper knowledge of standard operating procedures adds up to an eminent safety hazard (Connell et al., 2009).

Selection of an employee on the basis of having a formal training to upgrade his knowledge and skill set can also be considered a trait of intelligence in the prospective employee (Behling, 1998). However, how much does a person’s ability to retain from his training does impact his purpose of achieving a result? Mature or aged workers have a lower threshold to gain from training and development programs of an organization. Thus energies and age matters in this context.

Getting upgraded, by using modern techniques and tools, like using specific software on a computer to enhance work performance can prove to be difficult for people who do not have an exposure to the modern technology and techniques. Thus molding an employee into modern techniques can prove to be a challenging task, as discussed by Shultz (2001). A person’s willingness to be involved in training and development programs of an organization also works out to be significant while securing a job (Rassuli, 2005; Shultz, 2001). Believing the fact that

having a specific training or being part of a developmental program, brings mutual benefit to the employee and his organization, provides a general improvement in the job and portfolio of the organization as well as enhance employability(Mallon and Duberley, 2000).

New human resourcing techniques dictate that an organization focuses on reducing their operational direct and indirect costs. It is fair to say that a large expense of a typical organization is the management of its Human Resources. Thus, Organizations grasping the concept of keeping a contingent human resource, directly eliminate its operational costs. With employing temporarily, they save the costs of employee's welfare costs and social security. In similar context, a new trend is emerging, where the organizations hire independent firms to provide employees with specific skillset and knowledge. This reduces their efforts which are otherwise consumed in a lengthy and time intense task of hiring staff by conducting interviews, shortlisting etc. (Coe et al., 2010).

The interviews show a significant relevance and impact of training and development of a worker in the construction industry of Pakistan. One interviewee shared his point of view as *“I would be interested in what training a person has acquired rather than the fact of having added a training program in his C.V. Every project requires a trained professional of operational health and safety, but specific to my project needs, I would be more interested in an employee who has some training in monitoring the progress of this project, or is certified in operating a Sonic Integrity Test module, or is certified to operate a state of the art total station. This way, he can prove to be of use at my site”*. Taking this point of view, it is observed that the prospective employers do like the concept of formal training for some specific work to improve the quality of work.

On the contrary, A trend that shows a lack of interest in hiring trained professional for specific tasks is also observed, as one interviewee said *“Hiring trained professional may be beneficial for a job, but so far, we have not developed a need of having some formal training for the workers.*



*This is because of the fact that those construction techniques that require some formal training have not yet evolved in the construction industry of Pakistan”. Being asked to elaborate his point of view with an example, he replied, “A total station is an expensive piece of equipment, and its operation requires some formal training. Since we cannot afford to acquire a Total station, and we work with a dumpy level, hiring a surveyor with formal training to operate a total station is not a requirement for me”.*

Acquiring a formal training as requirement of job and enhancing personal skillset is a factor that has significant importance in the available literature internationally. Although a greater focus is on having Operational Health and Safety training, specifically at a construction work site, a great deal also relies on attaining training of techniques that may be suitable for enhancing progress, performance, quality, working techniques, construction management tools etc. the concerns highlighted by the interviewees, with an example mentioned above, shows that the concept of enhancing one’s capabilities by getting a formal training is still a new concept in the construction industry of Pakistan.

#### *4.2.4. Job pay satisfaction of a worker.*

Pay is an important job attribute and has a significant influence on job attractiveness and subsequent job choice. There is a list of different factors that a prospective employee considers when looking for a job, which may include organizational reputation, degree of qualification, requirement of market segment regarding employment, the amount of money offered for a job, payment policies, i.e. flexible or rigid, individual incentives vs group based incentives and pay scales, fixed pay vs contingent pay, etc. (Cable and Judge, 1994).

A general trend observed in construction industry is that the prospective employees want to try their luck in the foreign construction industry. This may pose a problem, because the lack of knowledge of market specific policies may lead to their employers exploiting their basic rights, and end up paying much less than the worth of work (Connell et al., 2009). Changing consumption patterns, globalization, world events, modernization, advanced capitalism, emphasis on process engineering and outsourcing has all contributed a significant amount of the pay preferences internationally (Bolton et al., 2012).

The employer organizations have also developed a trend towards “Downsizing” or “Rightsizing” their staff, in order to give a better economic progress towards their development (Rassuli, 2005). Different independent consultant organizations have emerged, that provide “Match making for jobs” services, which at the end of the day results in an abundance of highly skilled workforce with lesser employment opportunities, causing a trend for reduced wage low benefit worker rather than well-established high benefit worker (Coe et al., 2008).. Additionally, emphasis on the employment regulations of certain geographical region for working in legal and social constraints is another key element of consideration. raised solution offered in this context is that if salary paid to an individual is ample to reflect their input, employment of certain tools and techniques to enhance the job productivity, and sufficient experience, specifically in the case of mature workers employed by a flexible employment policy, can help them adjust as the new contingent workforce (Shultz, 2001).

As the results of the structured interviews show, the interviewees rated this factor highly relevant and impacting. All the interviewees agreed that having a stable payment policy does influence an employee’s decision to work at a project, and increased payments motivates them to enhance their productivity. One of the interviewee said that “*Having a satisfying pay for a work is not a*

*commodity we can enjoy throughout our work line. In certain projects, there are certain additional allowances, that when added to your salary, makes your gross salary a handsome amount. Whereas in other projects, additional allowances do not add up to much, but you have to accept it. It varies from project to project, what pay preference do you have. Some projects are good for you in terms of monetary incentives, while others help in improvement of skillset”.*

#### *4.2.5. Working Attitude, Style of work, and behavior of Employees during the work time*

A worker can be considered a productive member of a firm if he satisfies his superiors with a positive working attitude, willingness to adopt different techniques, and openness to new experience. Attitude of the worker can be used to describe his role in the organization’s development into a useful entity. Factors, such as making a handsome paycheck, productive relationship with management, receiving a positive incentive from an effort, recognition of his work, being fairly treated, and having a sense of achievement can prove to be helpful for a productive and healthy working attitude (Parkin et al., 2009).

Lack of a positive attitude like showing least concern to personal safety and health care, unsupportive policies of higher management, being ineffective in cost management, lacking personal moral values, improper training, inadequate qualification, and lack of innovation in traditional methods used in construction activities all add up to a poor attitude towards a healthy job relationship (Kulatunga et al., 2006; Druker et al., 1996). A worker should show his availability to new experiences, adopting new techniques, as well as provide rare skillset that can be used for the organization’s improvement (Huselid, 1995). An employee providing a zero tolerance policy in order to improve his operational health and safety, standards and specifications implementation,

having a fruitful relationship with the management can be considered as a great asset for an organization (Arditi and Mochtar, 2000).

It is also insisted that organizations should have a positive work environment, by providing good communication, clear set of standard operating procedures, good and quality supervision that proves to be in the benefit of the employee. Similarly, delivering training and development to an employee, a healthy pay check, good incentives, recognition, rewards, providing a social security, access to union apprenticeship, safe work environment, giving responsibility, trust, equal opportunities, and social activity opportunities contributes to a positive attitude towards work (Kazaz et al., 2008).

The interviewees agreed that a positive work attitude of an employee translates to a good progress in construction projects of Pakistan. One of the interviewee said, *“I am only a representation of what my team is. If my team members are hardworking, they focus in accomplishing their tasks, it translates to a good performance of the organization at a construction project”*. Another interviewee shared his concern and stated, *“We have to be creative to motivate the workers into providing quality work. Having a recreation together, getting a company funded lunch buffet, and so on does let stresses out and gives us a moment to relax. Construction Projects have a tendency to push people to limit, and when someone snaps, it only proves to be destructive to the reputation of the organization, as the other employees get demotivated”*.

#### *4.2.6. Organizational development of the employee and the employer (Personal/Social Relationship)*

One of the many qualities that a firm should possess is to have a highly productive and hardworking workforce is its policies on the organizational development of an employee. A firm should have a

policy for development of its workforce, that includes but is not limited to workshops, formal trainings, certifications and accreditations, and follow-up on the trainings received by their employees in order to improve the productivity of their employees, hence, enhancing their own capabilities in order to provide deliverables (Coe et al., 2008; MacKenzie et al., 2010). Performance of a firm can also be reviewed by the usage of their specific standard operational procedures, communication pattern, hierarchy chart, value to their lower tier workers, and management practices. (Dai et al., 2009). With the trend for employing temporarily, developing in the background, and the corporations opting for flexibility employment policies, there is a complete lack of effort seen by global corporations to invest in development of employees, hence developing their own portfolios (Preibisch, 2010; Mallon and Duberley, 2000). Organizations also tend to introduce the training and development programs to their core or peripheral workers, but not to their temporary workers. The role of temporary staffing agencies also put a significant impact in organizational developmental programs, as they facilitate the organizations to reduce employment costs by providing workers on temporary basis (Coe et al., 2010).

The interviewees also show a fair deal of concern for organizational development for mutual gains, with a high relevance to and mediocre impact, to the construction industry of Pakistan. Their collective point of view is that development of a worker in mutual benefit is a suitable idea to improve the productivity at work. They all have a collective reservation to paying a cost to have a developmental program in an organization for enhancing the skillset of their employees.

4.2.7. *Reward, bonus, appreciation and recognition for extra ordinary performance at job help to motivate the workers*

Rewarding extra-ordinary efforts prove to be a highly motivational factor for an employee. A reward can also be initiated to motivate a person for timely completion of a set of tasks, or following a specific protocol. For example, extra-ordinary effort to instate occupational health and safety at worksite (Clarke, 2003). A hard working employee also believes that he should be rewarded in the form of incentive payments and financial rewards in bringing ingenuity into his work environment in order to improve his productivity (Kazaz et al., 2008). Financial incentives are also considered to be high performance work practice by Huselid (1995). Selecting a group of employees with exceptional qualifications, providing them top quality training and development, and rewarding them by high payments and financial rewards also works in the benefit of the organization in terms of better portfolio and achieving more complex deliverables in time due to enhanced employees' satisfaction (Druker et al., 1996). An organization can also reward the employees in non-financial ways, such as providing better facilities like good food, comfortable residence, social security, apprenticeship with labor unions, recognition of work of an individual, and promotion for motivation and welfare of employees (Parkin et al., 2009).

The interviewees agreed that providing an incentive for an effort is a tool for motivating the employees in achieving quality results. They regard this factor fairly significant in case of its relevance to the construction industry of Pakistan, and having a medium level impact. One of the interviewees elaborated that, *“If one of my team members show an extra ordinary effort to complete a task efficiently, it is my moral obligation to give him a recognition for his efforts. And it definitely adds up to reasons to be employed by certain firms, because of their policies to give incentives, bonuses and recognition of work”*.

Giving a financial reward, whether in the form of a bonus, incentive, or a prize can be considered very motivating for enhancing productivity at a job. And an organization's attitude to give recognition to extra-ordinary effort at work sure adds up to its appeal to work with.

#### *4.2.8. Emotional Stability and Job Satisfaction with a job*

Organizations throughout the world are moving towards employing a group of employees on contingent basis rather than traditional full time employment with added benefits. The contingent workers are not being provided basic facilities like OHS training, medical insurances, and social security in order to reduce running costs. Having a feeling of being left out, from benefits, poses a challenge for contingent employees leading to dissatisfaction with their job. Such mental conditions may lead an individual to be involved into substance abuse and lack of communication, and therefore, posing a threat of workers' occupational health and safety (Cummings and Kreiss, 2008). Emotional stability can be considered as an attribute of consciousness of a person for a job (Behling, 1998). The attitude of management in providing recognition of effort for new or temporary employee also contribute its part in the emotional satisfaction of that employee, as he feels himself a part of the organization. Owning one's decisions shows that a worker is emotionally satisfied by his job (Mallon and Duberley, 2000). Feeling unsafe in a work environment, whether it is an occupational health and safety hazard or feeling emotionally disturbed due to the employment policies of a specific geographical region where a worker considers himself as an alien to the environment, have a great impact on a person's productivity and efforts (Preibisch, 2010).

On the topic of being temporary, if a worker does not bond with his job emotionally, he will not insert his full efforts in order to achieve a result, he will have a relatively lower influence of the

management, lower organizational commitment, lack of professionalism, poor attitude towards occupational health and safety, and a feeling of not being part of the group (Clarke, 2003). A lot of factors like availability of good food, a healthy home life, a good relationship with the management, a feeling of being fairly treated, recreation and relaxation, economic stability, trust and mutual understanding in between co-workers add up to a healthy emotional stability for job (Parkin et al., 2009).

The interviewees rate the emotional satisfaction as an important factor in considering the employment of a person for job. They show this factor fairly significant in case of its relevance to the construction industry of Pakistan, and having a medium level impact. One of the interviewee share his point of view as, *“Having emotional stability as a trait of a prospective member of my organization is a prominent quality I see in a person. The construction industry is a harsh environment, and you are constantly being tested for your limits. A person with a better emotional stability survives for a longer period, and with time, he learns to deal with stresses without being on the verge of breaking due to these very stresses, therefore proving himself a useful asset for the organization”*.

In essence, emotional stability is a quality that a prospective employer looks in for a worker in every job. Both, interviewees and the authors in the literature, agree with being emotionally stable as a quality that is a prerequisite for being part of construction industry.

#### *4.2.9. Improving Productivity in the job*

Improving productivity in the job is a characteristic that all the employers look for in a prospective employee. One of the techniques that can be used to improve the overall human resource productivity is to employ mature workers with ample experience in the field as a new contingent



workforce or on recreational employment to be as mentors for the new workers (Shultz, 2001). Providing training and developmental programs to the employees, specifically in the case of foreign workers can also contribute to a better productivity gain at work (Han et al., 2008). Willingness to be open to new experiences in executing a task more promptly and efficiently can also prove to be appealing to the prospective employer, and it also can be termed a quality of consciousness during the job (Behling, 1998). Apart from being open to a new experience, availability of training and developmental programs and giving incentives or monetary remunerations also play an important part to motivate a worker to enhance his productivity (Kazaz et al., 2008; Huselid, 1995).

The interviewees also agree to the importance of introduction of such techniques that translate to a better productivity for work. One of the interviewees said that *“If a worker goes to the trouble of introducing something new to his work routine in order to enhance the mutual benefit to both the organization and himself, he deserves a recognition of his extra ordinary effort. This is a positive attitude towards job, and I appreciate such a quality for a worker in my office”*.

Improving the job productivity by adopting various techniques and tools, specifically in the construction industry is the right direction to be headed to. With the complexity in operations involved in the industry, the demand of the time is to improvise our operations to achieve maximum productivity.

#### *4.2.10. Employer firms providing facilities to Employees (Residence/ Health Care/ Transportation etc.*

Employer firms providing additional facilities like residence, healthcare, transportation, social security, etc. to motivate a worker to perform in a strange environment where he feels himself to

be out of his comfort zone is an important factor that a prospective employee considers when he is pursuing a job. In the case of employment in an area with different sociocultural values, where a worker feels like an alien to the environment, basic facilities like health care, security, access to legal services (Connell et al., 2009), access to apprenticeship and membership to trade unions (Bolton et al., 2012; Kazaz et al., 2008), providing specific permits, providing a familiar to home environment in case of different cultural environments all add up to an organizations efforts to motivate a worker to a tough work environment.

The interviewees rate this factor with a significant relevance to the construction industry of Pakistan, with a mediocre impact. An interviewee expressed as so, *“Having facilities like transportation allowance, medical allowance, AD-HOC allowances in pay, etc. make a job attractive for a worker. A prospective employee conducts a research about a specific job before applying for that job, where he determines the overall benefits for that job. He then compares these results with the results of other job applications he is pursuing at that time. His decision subconsciously will be biased towards more benefits. Therefore, we can consider that the employer firms providing facilities to an employee plays a significant role in employee’s perception for his employer’s reputation”*.

Employer firms providing facilities for a job is an important aspect when searching for employment opportunities. The construction industry plays a significant part in development of a rural area, and rural areas can be considered to be a tough environment in the case of a worker who has no access of facilities available in an urban area. To motivate a worker to complete an assignment in such an environment, the employers have to give incentives and facilities to the employees in order to achieve their required results.

#### *4.2.11. Decision Making at Work if needed at lower ends*

Participation in decision making at lower ends tends to an employee considering himself as a part of organization, or gives him a sense of achievement at his job (Mallon and Duberley, 2000). When employing on a temporary basis, the employer usually considers the temporary employed workers as low ranked individuals, therefore putting them in lower levels in communication hierarchy, thus reducing their right to contribute to the organization's development (Castañeda et al., 2005). An organization's efforts to help its employees in decision making at lower levels in certain scenarios like for example, occupational health and safety, works to strengthen the employee-employer relationship in achieving productivity for a task (Cummings and Kreiss, 2008; Clarke, 2003). As discussed previously, an employee shows exponential pattern of growth if he feels connected to, or as a part of an organization. Therefore, it is his right to be a part of decision making if his contributions can solve a problem statement (Kazaz et al., 2008).

The interviewees rated the decision making at lower end of medium relevance to the construction industry of Pakistan, with a medium impact level. One of the interviewees said that *"A quality I would like to see in my juniors is the ability to convince his listener on his point of view, and also his ability to disagree on firm grounds"*. We can deduct from the statement that the construction industry of country agrees that the quality of a person to give decision on the spot definitely helps improve quality of works, and is highly appreciated.

#### *4.2.12. Choice of Employees during the selection phase and during short listing*

Choosing a functional team for construction project is a dilemma faced by the employer firms globally. A worker is only helpful in a project entity when he has a clear set of goals identified for him before he starts to work (Dai et al., 2009). With the organizations intending to reduce running

costs, a large emphasis is to hire workers temporary basis on cheap labor rates, therefore opening the possibility of employing alien workers is an upcoming trend to fill in the missing gaps to develop a functioning team in construction projects (James et al., 2015). A person is also considered worthy for a job with his abilities, knowledge, education, trainings and certifications, etc. An effective management of workforce on a construction work site gives the edge to provide with deliverables through an effective and efficient way (Mallon and Duberley, 2000). Employers also look for traits associated with intelligence and consciousness of a worker when selecting or shortlisting the list of prospective candidates for a job (Behling, 1998).

A trend of having an influence, whether through a reputation of a well-known person, or a recommendation, or a political influence seems relevant when choosing an employee. One of the interviewees expressed his concerns as, *“In most cases, when choosing an employee, it is generally expected that the board of directors conducting the interviews for jobs have the decision to select a person on merit. It is not always the case. A lot of it depends upon the political influence of the candidate over the higher management. We are bound to select a person with a noticeable lower level of qualification over a person who has a higher qualification merit than him, only because he is a favorite of someone in the higher management. We are therefore unwillingly biased towards the decision of the higher management, even though it affects our work.”* Such a concern clearly advocates our case that having a significant political influence over getting a job will end up in the selection of candidates irrelevant of the merit.

The interviewees rate the choice of employees for a certain job as relevant to construction industry of Pakistan without a significant impact.

#### *4.2.13. Legal awareness of the workers and know-how of Basic Human Rights*

Construction workers contribute to a significant share of their lives in their work routines. A typical shift ranges from 40 work hours a week to over 100 hours a week. With this level of commitment in daily schedules, construction workers can be considered under the category of workers with high level of physical involvement in their jobs. Having such involvement in the line of duty raises the concerns of official health and safety, overtime compensation, strict working disciplines in the construction job sites (Kazaz et al., 2008). Lack of knowledge of basic human rights, insufficient occupational health and safety knowledge, unawareness of work policies, lack of knowledge of work permit allowances (Connell et al., 2009), inadequate availability of access to worker unions and apprenticeship programs (Parkin et al., 2009) all lead to employer firms exploiting the basic rights of their employees. Lack of knowledge of basic rights most commonly leads to violation of occupational health and safety protocols, employer responsibilities like insurances, medical allowances, social security, etc. (Cummings and Kreiss, 2008), being employed on low wages, being blackmailed by the employers over acquiring work permits, employer specific permits, poor accommodation arrangements, unlawful restrictions like location tracking, curfews, prohibiting access to visitors, discrimination on the basis of gender and socio-economic barriers (Preibisch, 2010), working durations, sexual exploitation, forced labor, human smuggling and trafficking, lack of HSEs (Barrientos, 2013), etc.

The interviewees rated the awareness of legal obligations and basic human rights with lower relevance and impact on the construction industry of Pakistan. This is because of the fact that knowledge about statutes, laws and rules for a moral code of employment in Pakistan can be considered in the developmental phase and no certain code or rule set is available yet to argue

about. As compared to the literature available on the topic internationally, this is one of the topics to be insisted to be developed.

#### *4.2.14. Socio-Cultural Values for the Foreign Nationals working in different countries*

Workers of the construction industry may possibly see themselves faced with the issue of working in an environment out of their socio-cultural comfort zone. This may lead their employers in manipulating their employment methods to the verge of unethical and immoral practices (Bolton et al., 2012). Knowledge about the legal and social constraints of a certain geographical region may also help in looking for a job, specifically for applying overseas for a job (Coe et al., 2008). Having a workforce with the members comprising of different nationalities and socio-cultural backgrounds on a specific construction site can cause problems like communication and comprehension of operational procedures, and can also prove to be a difficult thing to be managed by site supervisors (Dai et al., 2009). Lack of communication and insufficient knowledge about different socio-cultural barriers may put a worker in line of eminent hazards like poor OHS, poor communications at work site, poor relations with management, and it may also lead to negativity and affected productivity if there is a clash of interests amongst colleagues (Cummings and Kreiss, 2008). Different sociocultural values can also strain the employee-employer relationship because it can lead to exploitation of rights by employers with work permits, providing basic facilities like health care, education and security, etc. Lack of understanding of different cultures can also cause a disruption of comfort levels due to inadequate housing arrangements, different lifestyles, freedom to practice religion, limited social and political facilities and benefits, etc. (Preibisch, 2010).

The interviewees rated the socio-cultural barriers for the workers least relevant to the construction industry of Pakistan, as compared to the other factors that may contribute to job uncertainty. The reason for this can be assumed to be because Pakistan has not yet emerged as a market of Construction Industry that attracts foreign nationals to work here. The techniques used here in the construction industry are either obsolete, or have been replaced by more functioning alternatives.

### **4.3. SUMMARY**

The factors that were concluded for the interview have all been discussed in detail, according to the point of view of the available literature and the representatives of the construction industry in Pakistan. An effort has been made to elaborate each individual factor to the level of defense of the argument presented in this study. The developing trends and the recommendations are discussed in the following chapter.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **5.1. INTRODUCTION**

In this chapter, the factors which contribute to job uncertainty and contingency in workforce for the construction industry of Pakistan discussed in this study are concluded. The first objective of this research was to identify a list of factors that may be associated with the job uncertainty and contingency in employment of a qualified workforce in the construction industry of Pakistan. To achieve the desired results, an extensive literature review was conducted, that helped identification of many factors that are considered when selecting an employee at a construction job site. Screening techniques to highlight the top priority factors were adopted to consider only the top rated factors in this study. A second stage of determining the relevance of these factors was conducted by a pilot survey, which rated these factors in the degree of relevance according to the construction industry of Pakistan. The objective was successfully completed with the results of the pilot survey, as mentioned in this study. The shortlisted factors were used to develop a semi-structured interview with the representatives of human resource managers in the construction industry of Pakistan.

The second objective of this study was evaluate and analyze the shortlisted factors for this study. The factors were discussed with the point of views of the contributing authors in the literature review, and the argument was strengthened by discussing the results of the semi-structured interviews and with the opinions of the interviewees, as discussed in the previous chapter.



Having presented with the joint opinion of the experts from both academia and field, we advance to the final objective of this study; formulate recommendations for effective HR Management of contingent workforce in the construction industry of Pakistan.

## **5.2. CONCLUSIONS FROM THE STUDY OF JOB UNCERTAINTY FACTORS IN PAKISTAN**

The factors identified in this study contribute to a significant share in development of the argument of this study, and are concluded as following.

### *5.2.1. Education and Qualification, knowledge about the work and the related experience in the field.*

Education and qualification for a prospective employee is the top rated factor in this study. Both the academia and professionals from the field rate this factor with significant impact to the construction industry. Knowledge of the work and relative experience in the field is equally emphasized by both sides as well, as a well-educated and experienced professional is more oriented towards better productivity, hence an asset for his employment firm. Therefore, a need is developing for creating a system that helps manage the skilled workers on the basis of education, knowledge and experience in the field has arisen, so that the constant of contingency for employment can be eliminated. A person molded by his education will prove to be more productive to his organization, and since more productive workers can be considered as an asset, the organizations will retain try and retain him. Hence, eliminating his risks of contingently employed.

### *5.2.2. Trade skills and the knowledge of construction tools and machinery.*

Academia rate the factor of knowledge of construction tools and machinery, and the trade skills in a manner of a specified need to the construction industry, varying with respect to the work. The interviewees also follow similar patterns in selecting the workforce, as per their requirements. Therefore, a need has developed to incorporate the factor of trade skills and knowledge of construction tools and machinery in the human resource policies of the firms operating in the construction industry of Pakistan. This will provide the employers with a well trained professional that can be considered as an asset to them, hence removing the factor of being contingently employed.

### *5.2.3. Training and Development of a worker and his training threshold.*

Trainings and developmental workshops have emerged as a new and fast moving trend in improving the personal skill-set and add value to the employer organization as well as the personal improvement, as elaborated in detail by both the academia and the construction industry representatives. While a lot of emphasis is on occupational health and safety, it can nevertheless be deducted that no effort on other fields is being done. The interviewees specifically raised their concerns in having trained and certified professionals employed at their work sites to improve the performance and productivity and therefore improve quality of work. It is therefore concluded that a need to establish independently governed bodies in order to regulate the training and development of workforce has emerged, to develop a skilled worker which can prove to be a valuable asset for an organization. Thus, helping in minimizing the risk of contingently employed for a job.

#### *5.2.4. Job Pay Satisfaction of a worker for a job he is employed for.*

Job pay satisfaction of a worker for the job he is employed for is one of the most motivational factor as deduced by both the academia and the field representatives. While this factor is more clearly articulated by the point of view of the prospective employee, there is ample emphasis in the literature. The field representatives of the construction industry are also working on their reservations about the cost management of construction works and projects. Therefore, it is deduced that a need to update the policies and the statutes arises, to properly and fairly pay the employees their respective salaries and benefits, so that the issue of being contingent at purpose due to insufficient pay can be catered for.

#### *5.2.5. Working Attitude, Style of work, and behavior of Employees during the work time.*

It can be clearly observed by the point of views of both the academia and the field experts that the main emphasis of all the organizations working in the construction business in Pakistan are focused in improving productivity and quality of works. Therefore, it can be said that the employers are looking for employees that are open to new experiences, can work more multi-dimensionally, are willing to improvise the techniques of the industry to improve productivity, motivated to bring innovation in the existing techniques, etc. Therefore, a need for motivational techniques like seminars and workshops has arisen at an organizational level to bring the workers possessing old working techniques up to the mark of modern technology, tools and innovation, so that they can be more desirable for an organization, and hence, needful for the employment organization, and solve the problem of being as contingent asset to an organization.

*5.2.6. Organizational Development of the employee as well as the employer (Personal/Social Relationship).*

The academia has thoroughly discussed that the employers attitude towards the organizational development of a worker will lead to a positive, constructive benefit for the organization itself. Working for a positive relationship in between the employees and the management benefits in development of the organization, and having a positive attitude towards the organizational development by the employers will lower the factor of contingency. The interviewees' reservations towards paying extra costs for initiating organizational development programs in their organizations can pose as a threat in implementation of such programs. However, a need to develop a worker into a benefit for a company has ascended, and policies to entitle a worker to developmental programs as a liability of the employer firms is needed to be incorporated with the human resource management policies of the organizations operating in the construction industry of Pakistan. The employers would then have tailored their employees according to their needs, and will progress to consider the person as a part of their organization. Hence, reducing their chance of being uncertain of their employment status as being a temporarily employed workers.

*5.2.7. Reward, Bonus, Appreciation and Recognition for extra ordinary performance at work help to motivate the workers*

Recognition of work and a reward or an incentive for extra-ordinary effort of an employee is worked out as an effective tool to improve the organizational productivity. Discussed thoroughly, both by the academia and the representatives of the field, this factor cannot be directly linked to the question of job uncertainty. However, it can prove to be an expression of an organization's attitude towards employing contingently. Therefore, a need to develop a strategy to regulate

financial incentives and benefits in the form of bonuses and prizes has arisen, so that a worker can be acknowledged for his extra ordinary efforts that he has employed at a job, and is identified as a productive member for his organization. Therefore, he will have reduced the risk of being considered as a temporary worker for a job, and will have more prospects in being upgraded to a regular employee of his organization.

#### *5.2.8. Emotional Stability and Job Satisfaction with a job.*

As discussed in the available literature and as a view point of the representatives of the field, emotional stability and job satisfaction can be considered as a major factor in not only improving job productivity, but a worker's ability to cope up with the stresses at work. Therefore, a need for implementing techniques to evaluate a worker's emotional stability has developed, in order to improve his mental state of mind, so that he can prove to be a productive member of the construction industry workforce, therefore eliminating his chances of being contingently hired for a job.

#### *5.2.9. Improving Productivity at job*

Discussed in detail by both the authors and the interviewees, improving job productivity shows a positive attitude of a worker towards his job duties. Being positive at job and contributing to productivity makes a worker as an asset for his organization, as he improves the work quality for that organization which can also lead to more financial gains in the favor of that organization. Therefore his chances to be retained after the end of his tasks are improved and the risk of elimination at the end also significantly reduces, and he can be considered as a regular employee as compared to being contingency hired for a specific job.

*5.2.10. Employer firms providing facilities to Employees (Residence/ Health Care/ Transportation etc.)*

As elaborated in the literature, employer firms providing facilities like residence, healthcare and transportation creates a positive relationship in between the employers and the employees. This positive attitude can be helpful in improving productivity at work from the employee's end. Therefore a productive employee is more of an asset to an organization, hence his chances of being considered temporary reduces significantly.

Seeing with the employees' perspective, the interviewees argue that providing facilities to an employee helps him in making decision when he is pursuing different job applications. The employers also can present these facilities as an incentive to work in hard environments. Giving facilities make a perspective job more lucrative for employment, and the prospective employees will subconsciously will choose the job with more benefits.

It can therefore be concluded that although the factor of employer firms providing facilities directly do not contribute to contingency in workforce, but it can prove to be significantly influential in decision making when choosing in between different jobs. Hence, a need for creating such a platform is developing, which can facilitate in comparing different job prospects for the workers, so that the right job can be delivered to the right person, and he can prove to be an asset for his firm, and not a temporarily hired worker.

*5.2.11. Decision Making at Work if needed at lower ends*

Considering the arguments of both the authors and the field experts, it is fair to say that the factor of decision making power at lower end as a quality of a lower tier worker is highly admired and appreciated. Making decisions and then standing their grounds is considered as a positive attribute

in a construction worker. Construction project management is a complex operation, where timely decisions are at the core of the project success. Making the right decision greatly contributes to solve resilient issues with the tasks timely, and is considered to be the attribute of intelligence and consciousness in a worker. Attitude of a worker towards its organization by making decisions on moral grounds does work out to be beneficial to the organization as well, and also contribute to his being an asset for the organization. Hence, as an asset to his organization, a person will be less prone to be considered as a temporary employee, and more prone to be considered as a regular employee.

#### *5.2.12. Choice of Employees during the selection phase and during short listing*

Choosing the right employee for a job to improve the work productivity is highly emphasized by the academia. A person job fit will contribute to being constructive and beneficial for an organization. But where the academia focuses on selection on merit, the representatives of the construction industry raise the issue of influence of a prospective employee over the employers, whether on a personal preference, previous reputation or political interference. This influence will end up in violation of merit for the job, hence affects the certainty in employment. Therefore, a need has developed for incorporation of certain policies in the human resource policies of organizations operating in the construction industry of Pakistan that ensure implementation of merit for selection of employees at a job, so that the contingently employed workforce can be selected on a merit for a beneficent long term employment.

#### *5.2.13. Legal awareness of the workers and know-how of Basic Human Rights*

While the academia has raised significant concerns for proper implementation of legal rights of the workers, the interviewees of this research do not rate this factor to be quite significant. This

trend can be anticipated primly because of the assumption that pursuing legal rights and statutes has not developed as a trend in Pakistani construction industry. Therefore, no significant efforts can be observed by the employer's human resource management to regulate the proper implementation of such statutes and policies to provide a fair environment to all the prospective employees of the construction industry. Therefore a need for development of a regulatory body has arisen to monitor and help implementation of legal rights to all construction industry workers. With the development of such policies of legal rights, the factor of contingency can greatly be reduced as the regulatory body can also influence in the policies of contingently hiring a workforce for a project.

#### *5.2.14. Socio-Cultural Values for the Foreign Nationals working in different countries.*

The interviewees in this research rate the factor of socio-cultural values for foreign nationals working in in different countries as irrelevant to the construction industry of Pakistan, primarily because a well-defined trend has not emerged yet that shows the Pakistani construction industry to be attractive to the foreign nationals. However, as discussed in detail by authors in various studies and researches, different socio-cultural values amongst people in a same country can be considered. Therefore, a need for implementing such policies that can prove to be facilitating for a group of workers from a different geographical region is developing. And with implementation of such policies, the contingency margin for employing workers of a different socio-cultural values can be widened for the benefit of the workers.



### 5.3. SUMMARY AND RECOMMENDATIONS

In this study, we have gathered a list of factors that concerns the relevant members of the construction industry in Pakistan when selecting a person for a job. We also have discussed these factors individually in detail to properly understand their significance to the work environment in our construction industry. Having backed by the academia and the field through thorough literature review and conducting an interview in the field, we strengthen our argument, and our need for the hour to develop a methodology to effectively manage the skilled workforce for the construction industry of Pakistan. Management of the workforce through education, qualification, experience and knowledge of tools and techniques is of primary importance, and a system is to be established that can be used to categorize and manage the workers effectively. The attitude of the employees towards their job and willingness to be part of new experience are also the factors that should be used in the system to provide the employers with the right persons for job, and an independent institution needs to be developed that regulates this process of employment at a national scale. The findings of this research will be helpful in development of such a system.

#### *5.3.1. Education and Qualification, knowledge about the work and the related experience in the field.*

By developing a system that helps manage the skilled workers on the basis of education, knowledge and experience in the field, we can assure that an educated and qualified professional is properly placed in an environment, and he will work for the benefit of the organization in improving the productivity. Therefore, development of such a system is recommended in this research.

### *5.3.2. Trade skills and the knowledge of construction tools and machinery.*

By incorporating the factor of trade skills and knowledge of construction tools and machinery in the human resource management policies of employer firms that are operating in the construction industry of Pakistan, we will assure proper placement of workers in their areas of expertise and hence, improving the productivity of these firms operations. Therefore, incorporation of policies to effectively manage the trade-skills of professionals is recommended in this research.

### *5.3.3. Training and Development of a worker and his training threshold.*

With the establishment of independently governed bodies in order to regulate the training and development of workforce, the management of trained professional will be guaranteed. As an added benefit, the need for specific trainings a developmental workshops will also arise, that can further broaden the scope of improvement in productivity. Therefore, establishment of such independent governing bodies is recommended in this research.

### *5.3.4. Job Pay Satisfaction of a worker for a job he is employed for.*

Since a need to update the policies and the statutes has risen, so that a proper and fair pay for the employees can be guaranteed, and their respective salaries and benefits can also be enhanced accordingly. Therefore, an upgradation of such policies is recommended in this research.

### *5.3.5. Working Attitude, Style of work, and behavior of Employees during the work time*

For the factor of working style and attitude of employees during work time, a program of seminars and workshops is recommended in this study at an organizational level to bring the workers possessing less productive techniques up to the mark of modern technology, tools and innovation

techniques so that they can improve their individual productivity, as well as organizational productivity in order to finish the undertaken projects.

*5.3.6. Organizational Development of the employee as well as the employer (Personal/Social Relationship).*

Since a need to develop a worker into a benefit for a company has ascended, updating the policies of an organization in the favor of the employees in order to gain entitlement for developmental programs as a liability of the employer firms is needed to be incorporated with the human resource management policies of the organizations operating in the construction industry of Pakistan. Therefore, updating of such policies is recommended in this research.

*5.3.7. Reward, Bonus, Appreciation and Recognition for extra ordinary performance at work help to motivate the workers*

As the need to develop an effective set of strategies to regulate financial incentives and benefits in the form of bonuses and prizes has arisen, a recommendation in this research is the development of such a system, so that an employee can be recognized and accordingly rewarded for his extra ordinary efforts.

*5.3.8. Emotional Stability and Job Satisfaction with a job.*

As a need for implementing techniques to evaluate a worker's emotional stability in order to improve his emotional state of being has emerged, a recommendation in this research is development of such psychological techniques to correctly evaluate and then improve the emotional state of a worker, so that he can prove to be a productive member of the construction

industry workforce in Pakistan. Furthermore, other techniques like financial rewards, encouragement, giving a break, changing the work environment, and so on also need to be implemented as an employer's liability to provide a healthy and productive work environment.

#### *5.3.9. Improving Productivity at job.*

Recommendation for implementing any techniques that help in the improvement of productivity shall be highly appreciated by the employers. Furthermore, incentives in the form of financial rewards also help motivate the workers into improving productivity.

#### *5.3.10. Employer firms providing facilities to Employees (Residence/ Health Care/ Transportation etc.).*

It has been established that when a prospective employee is searching for a job, he looks for the facilities provided by the employer for the purpose of that specific job. It can therefore be assumed that a need for creating a platform to facilitate the comparison of different job prospects is developing. It is therefore recommended that an interactive system is to be developed to serve as an effective employment kiosk for the purpose of comparison in between jobs, so a worker can find a perfect fit for himself.

#### *5.3.11. Decision Making at Work if needed at lower ends.*

Making a right decision at a right moment is a potentially good attribute for a member of a construction project workforce, as seen by the employers. Giving a positive gesture for a good decision well-made motivates a worker to provide quality work and productivity at his work. Therefore, as a recommendation in this research, such a quality in a prospective employee shall be exploited, along with proper guidance, in order to develop a worthy asset to an organization.

#### *5.3.12. Choice of Employees during the selection phase and during short listing.*

As a need has developed for incorporation of certain policies in the human resource policies of organizations operating in the construction industry of Pakistan that ensure implementation of merit for selection of employees at a job, it is therefore recommended in this research that a system is to be implemented which ensures a proper selection of employees at job based on a merit worked out by a specific criteria so that all the prospective workers are treated fairly.

#### *5.3.13. Legal awareness of the workers and know-how of Basic Human Rights.*

As a need for implementing the legal rights of the workers is emphasized in this research, development of rules and regulations for providing a fair and equal work environment for all is also recommended in this study.

#### *5.3.14. Socio-Cultural Values for the Foreign Nationals working in different countries.*

In the light of this research and its findings, a need for implementing certain policies that prove to be facilitating for a group of workers from a different geographical region is developing, it is recommended that these rules are to be incorporated by the human resource policies of firms operating in construction industry of Pakistan. With that, a fair ground can be provided to all the minorities to operate in this industry.

Furthermore, it is implied that this research must be considered as a base level effort to help solve the problem of uncertainty in jobs for construction industry of Pakistan by identifying a list of factors that contribute to contingency in employment. Further efforts are needed and recommended to properly interpret the true extent of the impact of the Job Uncertainty problem, so that it can be properly interpreted, and an effective methodology can be formulated to resolve this issue.

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