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GENERAL OVERVIEW OF SAFETY PRACTICES IN THE CONSTRUCTION INDUSTRY OF PAKISTAN

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Abstract- Construction Industry of Pakistan is growing rapidly. Whereas accidents and fatalities, rates are also increasing day by day. Because of the lack of seriousness and honesty from concerned regulatory bodies, the Situation is worsening on sites. There is no proper system in Pakistan to check the safety and risk management on Construction sites. Several researchers have proposed solutions to improve the quality of safety management but from the higher management to the lower, but no one is aware of the importance of safety rules. Since there is no safety training and workers are unskilled, the quality of construction is giving an alarming situation. It is a dire need of the hour to take necessary steps and implement the rules for the safety of workers and indeed improve the quality of construction. This research work highlights the current situation and provides a general overview of safety practices in the construction industry of Pakistan.

Keywords- Construction Industry, Pakistan, Safety management,

1 Introduction

The construction industry is vital to both the economy and society. However, it is often regarded as one of the most hazardous industries [1]. The performance of construction projects is significant when discussing safety regulations and requirements for construction projects. Because of its particular environment, uncertain site conditions, unpredictable human behavior, and hazardous activities, the construction industry has higher fatality and injury rates [2]. To reduce the ratio of fatalities in Construction Industry globally, Developed countries have implemented several health and safety systems to manage on construction sites [3]. Because of such management consistent decrease in the accident ratio has been recorded for the last 20 years [4]. In developing countries like Pakistan, Mainly stakeholder's primary focus revolves around improving the quality of construction, minimizing cost, and reducing time. While safety factor lies on their least priority. Construction in underdeveloped countries of the world like Pakistan & India, is more labor-intensive than in developed countries, with 2.5-10 times as many workers per milestone [5].

The main dilemma is that all Safety regulatory bodies are almost ineffective and contractors are unable to provide proper recorded documentation of actual injuries and fatalities [6]; [7]. In the Construction industry of Pakistan, another main problem is cultural diversity which relates to differences in language, religion, and culture. This cultural diversity on one end has a bright side as the Construction Industry of Pakistan is providing job opportunities for all areas of the country. But it tends to inhibit safety on the worksite [8]. Various researchers have done research and efforts have been made globally to study safety performances in Construction Industry [9]; [10]; [11]; [12]; [13]; [14]; [15]; [16]; [17]. Therefore, safety systems have been implemented to prevent accidents and increase the performance of specific construction projects [18]; [19]. Right now the main focus is to achieve zero accidents and target ultimate safety performance [20]. For several sites, there are no programs, no briefing for new staff or employees, there is no identification of risks and no safety meetings take place. All the workers are responsible to learn from their own experience by doing mistakes. Not only that, there is a lack of medical facilities, shanty housing and low standard sanitation lead to a risky future of the construction site [8].

For contractors in developing countries like Pakistan, one of the most important steps in controlling costs of the construction project. The contractors are obligated to implement safety but as a business strategy which although has led



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to little improvement in global construction safety records. There is a significant difference between large and small contractors. Most of the firms have a safety policy of the site but it is limited to only paperwork and employees are unaware of safety rules and regulations. Unsafe conditions exist on many small and large sites and workers are faced with various kinds of risk [21].

Despite the recent growth of construction activities in recent years, Pakistan's construction industry is plagued by dangerous working conditions, owing to a lack of a clear regulatory structure [22]. Reactive and risky practices have become the standard in the construction industry as a result of a lack of safety infrastructure [7]. In any sector, the value of a strong regulatory system for enforcing safety legislation for worker safety cannot be overstated. Despite the industry's economic significance, the government is paying less consideration to worker protection, and as a result, institutional governance has little influence [22].

The main objective behind this research work is not only assessment of current safety practices in the construction industry of Pakistan, but it will also explain the causes of accidents and injuries, reasons behind violation of safety rules and regulations, and highlight the impact of safety management on construction sites.

2 Assessment of Safety practices in CI of Pakistan

The majority of the time, stakeholders demand better quality and speedy work at the minimum possible cost. But unfortunately, there is no specific budget for a safe and healthy work zone. Smaller construction companies do not have any policy for safety at construction sites thus exposing workers to the hazardous condition [26].

As per the annual assessment of the Pakistan Bureau of Statistics, from the total labor force (59.79Million), 7.4% (4.424 million) labor is associated with the construction industry. Table A shows a consistent increase in the rate of accidents and injuries i-e 14.55% in 2006 to 15.24% in 2012. Therefore, it lies in the 2nd place of the most injury lying industry just after agriculture sector [27].

Table A: Occupational Accidents and Injuries; Division by different major industries of Pakistan (percentage-wise) [27]

Type of Industry	Financial Year						Ranking
	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2012-2013	
Agriculture	40.94	46.84	50.43	50.2	49.8	49.1	1
Mining/Quarrying	0.29	0.09	0.33	0.1	0.2	0.2	
Manufacturing	15.21	12.72	13.96	12.8	15.8	13.3	3
Electricity, gas and water	0.87	0.51	0.71	0.4	0.2	0.5	
Construction	14.55	14.93	14.54	14.3	13	15.2	2
Retail Trade, Restaurants and Hotels	9.26	7.96	7.54	10.6	10.3	9.2	4
Transport/Communication	7.98	8.02	8.14	8	7.1	7.3	
Community/Social Services	10.56	8.39	4.33	3.5	3.3	5.1	
Other Industries	0.34	0.54	0.02	0.1	0.3	0.1	



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2.1 Causes of Accidents and Injuries on construction site

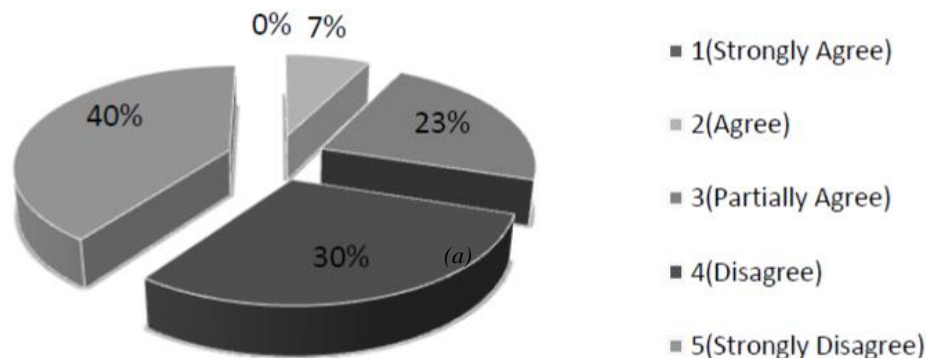
The prevention of accidents is the key topic of construction safety. Several types of research were conducted to provide insights into the nature and causes of construction industry accidents. Some research listed the key causes of worker's death, while others established the main types of building accidents [28]. According to research work on 100 individual construction incidents. The study presented key accident factors in the form of employees' or team workforce (70% of accidents), workplace problems (49%), equipment deficiencies (including PPE) (56%), material adequacy and condition problems (27%), and risk management deficiencies (84 percent) [29].

In descending order, the main reasons for accidents on construction sites are the falling of workers from height, being killed from electrocution, being snatched in between machinery, and being struck by objects falling from height [30]. Another major reason for accidents on construction sites is a high number of unskilled workers because of higher illiteracy percentage [31]. According to the research report, causes of accidents in Malaysia are workers' negligence, failure to follow work protocols, working at height, operating equipment without safety measures, inadequate site management, rough work operations, workers' lack of experience and ability, failure to use personal protective equipment, and workers' poor attitude toward safety are the leading causes of construction accidents [32].

2.2 Level of safety awareness on construction sites

After doing an intensive amount of research an academic revealed that the primary focus of the majority of the contractors is revolving around increasing profit margin in a project. There are no rules and regulations for safety and the policies are not up to date. Another main point reveals that there are no training programs for existing and new workers on many sites. No safety drills are being practiced by any kind of workers and there are no safety engineers present on sites. So the workers are exposed to the dangerous work environment and the only way they can learn about safety procedures are by doing mistakes and this way they will get experience. By doing such 'mistakes' or 'errors', workers take a risk and some of the common incidents happen like workers falling from a height because of unreliable and unsafe placement of scaffolding or due to unavailability of safety belts. Also, there is no proper cleaning of the sites after the completion of any activity. Many things like pieces of steel, electric wires, or sharp objects are spread on the whole area which can create a risky mess for the workers. Another shocking point was discovered from the interviews conducted by different contractors and project managers are that accidents are not reported to concerned authorities as the contractors are afraid of their qualitative assessment by the client. In underdeveloped countries like Pakistan, Rules and regulations for safety management are not enforced properly [4].

It can be seen from figure 1, (a) 70% of the workers on construction sites are unaware of the safety rules and they think that labor does not need to take personal care and work in a comfort zone. (b) So, a higher percentage of workers tend to resist the training sessions and get easily annoyed if asked to follow basic safety precautions. (c) The majority of the workers and contractors believe that by following safety rules and taking precautions, the overall progress of the project will be affected. Very few of them think that taking safety measures has a positive effect on the quality of a project [8].





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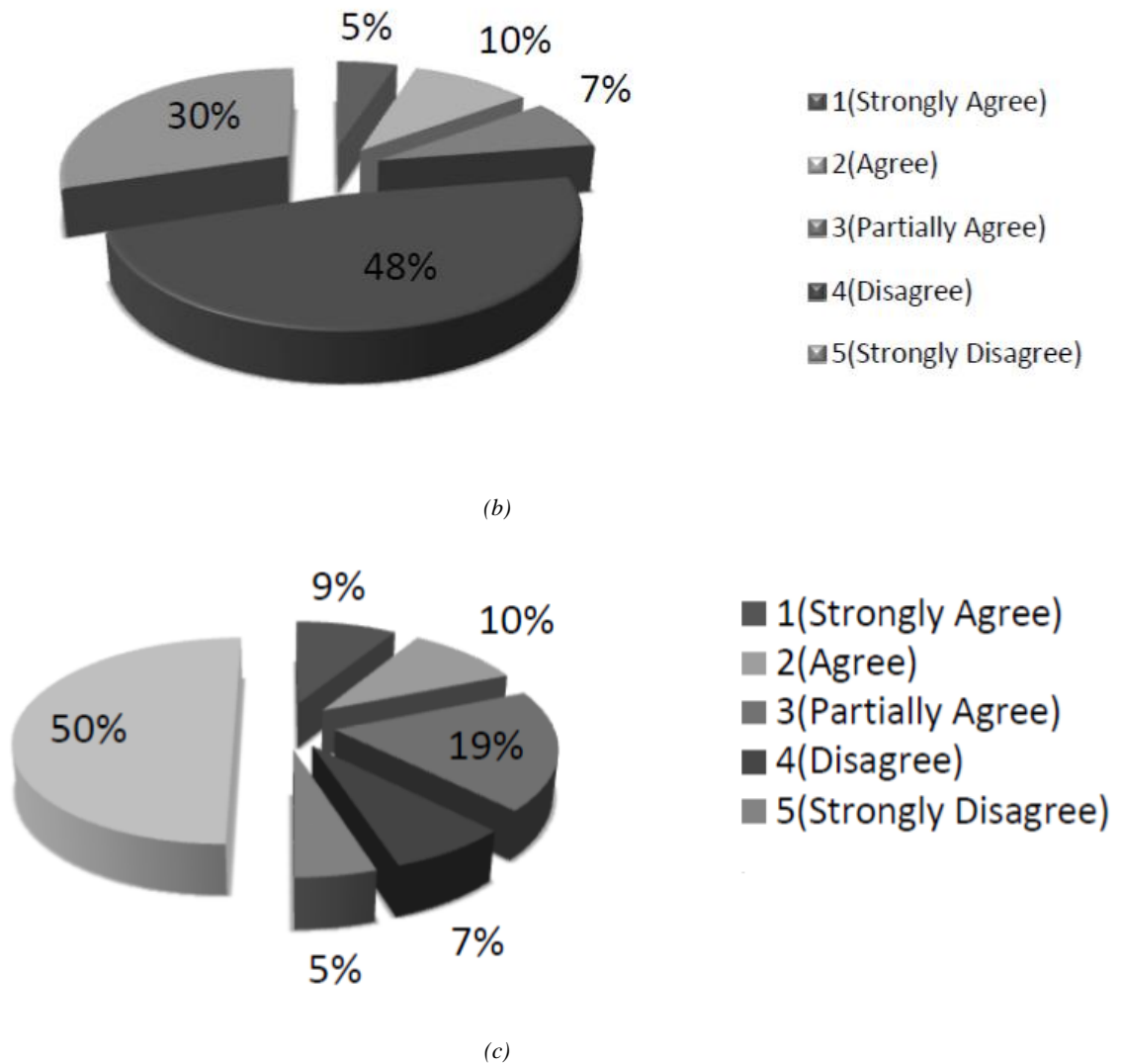


Figure 1: (a) level of awareness for safety, (b) Labor behavior toward safety measurements, (c) Impact of taking safety precautions

2.3 The reason behind violation of safety rules and regulations in Pakistan

With time majority of the construction firms do not upgrade their safety manuals [22]. Also, safety policies are prepared as a formality only for documentation purposes [31] [33]. Researchers evaluated the effect of awareness, physical and supportive environments on the culture of safety and highlighted neglected practices for safety such that; use of low-quality scaffolding without guards, faulty stepladders not correctly bound, working on a roof without the use of any protection, and hand-held deep excavation without using of any straps [34] [35]. The most commonly neglected activity on construction sites is safety training [36].

3 Impact of safety management on construction sites

Institutional procedures are not strong to formulate, implement and monitor safety rules and regulations. The deployment of safety management systems does not take place on construction sites. Data are not easily available on injury and death



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rates and scientific literature is not available on construction safety either. These must increase awareness of safety management in the country [4].

The Directorate of Workers Education (DWE), established in 1982 under the Ministry of Labor, is a training and educational body responsible for raising awareness and providing information on rights of labor and social issues by mounting various courses throughout the year for employees and union officials and management representatives (GOP, 2005). There are several strict rules and regulations on child labor and the facility of a minimum wage. Although there is a difference in wages of urban and rural areas. Government in central areas do revise periodically labor wages. But unfortunately, the implementation of safety regulations in Pakistan is not strictly followed. DWE works under the Ministry of Capital Administration & Development at the federal level. However, it has unsatisfactory performance. A secondary entity called `The Center for Improvement of Working Conditions & Environment (CIWCE)` has been established in the Province of Punjab by the Labor & Human Resource department in Lahore which provides professional and authentic services in the OH&S sector [4].

Few of the private institutions also provide OH&S training for the industry, such as; OCSP, OCTI, and the Vivid Institute of Occupational Safety and Health, although also on a commercial basis (VIOOSH). PEC also conducts workshops on safety awareness and mandatory short CPDs, however, such training sessions are for engineers and supervisors only, whilst for construction workers no training is arranged [37].

PEC has included OH&S clauses in their manuals; however, they are largely not implemented because any concerned regulatory body is not there [19].

- a) Part I (General Contract Conditions) clause 19.1 of PEC's standard bid documents (PEC, 2007, p.90).
- b) Precautions for safety: Part II (Particular contractual terms) clause 19.3 of the standard PEC bidding document. (PEC, 2007, p.152).

4 Results

This is an alarming situation in the Construction industry of Pakistan that in the 21st-century workers are not aware of their rights and they lack seriousness towards applying safety rules while working on site. Several types of research have been done in regards to creating awareness among the higher concerned regulatory bodies to start a proper campaign in the Construction Industry to minimize the ratio of injuries and accidents. Pakistan Engineering Council has included clauses from OH&S, But due to carelessness and the non-serious attitude shown by concerned regular authorities, there is no proper check and balance on constructions sites.

What the industry most likely lacks is a clear, detailed, and yet successful strategy. Workers often tend to decline the importance of using safety gear because of illiteracy. The majority of the Contractors on the other hand have only one main focus which is increasing profit margin. So, they ignore to formularize strategies for safety management on their sites. PEC is arranging seminars, webinars, and workshops, but those are limited to only engineers. Whereas there is no proper safety training given to workers before starting any activity.

5 Conclusion

The implementation of safety rules and regulations on projects is clearly neglected in Pakistan's construction industry. According to the Pakistan Bureau of Statistics' annual evaluation, the ratio of accidents and injuries plainly demonstrates the inadequacy of Pakistan's regulatory authorities. This research study gives an overview of safety practices being implemented in the Construction Industries of Pakistan and based on the findings following conclusions are made:

- H&S workshops help in creating awareness among the concerned professionals. Higher Education Commission can play a vital role here in the modification of the education system. The concerned department of HEC can make a policy for the Engineering department of the university to arrange health and safety training and workshops for



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students to participate and perform the drills practically on actual construction sites, before graduating. This will help the fresh engineers to realize the importance of safety and risk management.

- By introducing a Quality grading system for a construction company. If carefully incorporated in PEC safety rules and regulations documents, monthly reports for implementation of health and safety rules will be assessed and points will be granted on basis of performance. Not only it will help in creating healthy competition between companies, it will also help in creating more jobs for fresh and experienced engineers, thus lowering the ratio of unemployed Engineers.
- Pakistan's construction industry lacks serious commitment to implement safety rules and regulations on construction sites. As per the above discussion, the presence of a safety engineer is mandatory on every construction site to maintain the quality of work, irrespective of the category of company, given by PEC.

Just because of lack of safety and risk management Pakistan has gone through a severe catastrophe in the 2005 earthquake. Now the question arises that are all concerned departments including PEC are waiting for other disasters? Why the concerned higher authorities are not taking the necessary steps to overcome these major problems?

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