

REVAMPING OCCUPATIONAL SAFETY AND HEALTH (OS&H) REGULATIONS IN PAKISTAN

Tariq Umar¹ and Nnedinma Umeokafor ²

¹University of the West of England (UK)

²University of Greenwich (UK)

Abstract

Construction is regarded as the most hazardous industrial sector due to its nature and physical demanding activities. Construction workers in developing countries are 3–4 times more likely to die from accidents on-site compared to workers in other industrial sectors. One of the main reasons for this is the lack of vigorous OS&H regulations. The aim of this article was to review the OS&H regulations applicable to construction in Pakistan which has been recently given the status of industry. Several legislations made at federal and provincial levels which cover some basic and general provisions of OS&H applicable to all industrial sectors, there is currently no specific regulation specifically design for construction industry. The government as part of their initiatives to support Pakistani economy has introduced several attractive financial incentives which are attracting both local and international companies to invest in construction sector in Pakistan. Interviews with experts suggest that the government needs to introduce OS&H regulations for construction along with their plan to establish Construction Industry Development Board. Such regulations need to be implemented by an independent body formed at federal level which may also be entrusted to collect, analyze, and monitor OS&H data and review the effectiveness of regulations.

Keywords: Accidents in Construction, Occupational Health and Safety (OS&H), OS&H Regulations, Developing Countries.

1. INTRODUCTION

Construction is one of the main industrial sectors in Pakistan contributing 2.53% to its GDP and provide jobs to 7.61% of the employed worked force (BOI, 2022). It is expected that construction value which was 5.34 billion US\$ in 2020 will reach 15.32 billion US\$ in 2029 (figure 1). Likewise, based on the road network of 263,775 Km, Pakistan is ranked at 22nd position globally (The Global Economy, 2019). Currently, Pakistan is facing a housing shortage of around 11.4 million homes which is expected to increase to 17.2 million units by 2025. One of the main reasons of this shortage and increase is that people are frequently moving to cities as it provide improved lifestyle, and employment opportunities (Pakistan Homes, 2021). It is estimated that the annual demand of housing units is approximately 700,000 a year, and only about half of this demand is met (NPHDA, 2020). Construction industry will play a vital role to meet the requirement the requirement of housing in Pakistan which will clearly contribute to the expansion of industry. Likewise, the government has given construction the status of the industry and to attract foreign investments, several incentives, and benefits have been provided. These initiatives have clearly increased the Foreign Direct Investment (FDI) which was US\$ 53.5 Million in 2015 have reached to US\$ 386.8 Million in 2019 (SBP, 2019). There is also an amnesty scheme for the construction industry which allows the people to file their declarations who have paid their tax on whitening of assets under the 2019 tax amnesty scheme for the construction industry (FBR, 2019). "Whitening of assets" refers to the process of legalizing assets that were previously undeclared or held in a manner that avoided taxation or regulatory scrutiny. This process is often associated with various forms of amnesty or tax regularization programs introduced by governments to encourage individuals and businesses to declare hidden or unreported wealth, typically for a fee or tax payment. This amnesty in Pakistan has resulted in a registration of 2,125 projects in the FBR online system that include an investment of 1,775 new projects and 350 existing with a total investment of US\$ 1,988.64 Million. Such expansion of industry is expected to attract international construction organizations which is good for Pakistani economy, but at the same time such expansion poses several sustainability issues, including health and safety issues for which Pakistan will needs to have robust and up to date regulations supported by a vigorous implementation system (Umar et al., 2018). The international companies which are intended to get advantages of financial incentives and planning to work in Pakistan are required to have a basic understanding of different legislations and regulations including health and safety

legislations. The purpose of this article is therefore to review the health and safety legislations and regulations in Pakistan with a specific reference to construction industry. The interviews held with industry professionals provide some useful suggestions that can be considered by the government in revamping and implementing OS&H regulations in Pakistan. The findings of this article will benefit to both local and international companies and individuals who are working or intending to work in construction industry in Pakistan.

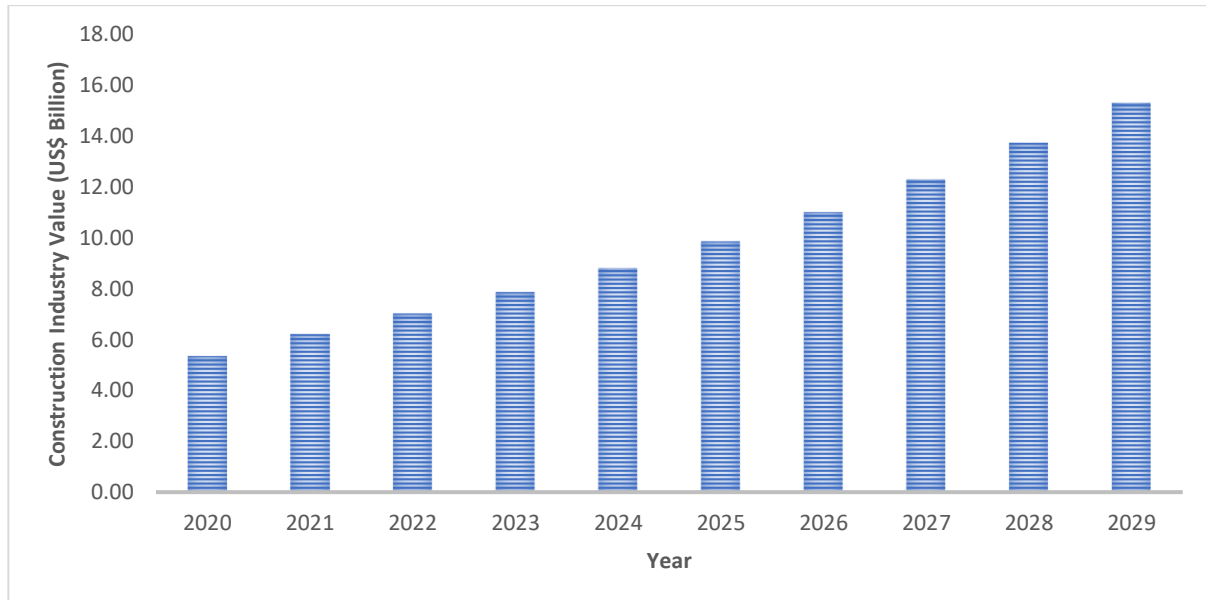


Figure 1: Construction Industry Value Projection in Pakistan (2020 – 2029) – (BOI, 2022)

2. HEALTH AND SAFETY IN CONSTRUCTION

The International Labor Organization (ILO) reports that 2.2 million people die every year due to work-related accidents and illness. The report further indicates that more than 270 million workers are injured and an estimated 160 million suffer work-related illness (ILO, 2022). Construction is one of the hazardous industrial sectors where each year more than 100,000 workers die on construction sites due to different occupational safety and health (OS&H) conditions. This number is nearly 30% of all occupational deadly injuries (Umar and Egbu, 2018). Different statistical data reveal that construction laborers in different developed countries are three to four times more likely to die from accidents on-site compared to workers in other industrial sectors. In the developing world, there is a higher risk (three to six times more) of death linked with construction work than in developed countries (ILO, 2015). Many construction workers suffer and die from work-related illness developed from prior influence of dangerous materials, such as asbestos and other chemicals. Many key sectors including construction, mining, agriculture, and fishing face significant challenges in terms of OS&H risks and hazards. OS&H related statistics are not available publicly as there is no organization at federal similar to OSHA in United States and HSE in United Kingdom which collect and analyze such data. Several statistics reported earlier suggest construction industry in Pakistan was second among all industrial sectors based on occupational injuries and fatalities rates (figure 2). Another research study reveals that construction industry of Pakistan was having the second highest injuries rate as compared with other nine industrial sectors. The injuries rate in construction which was 12.54% in 2001 has risen to 17.30% in 2018 (Noman et al., 2021). High rate of occupational injuries and fatalities results in a huge economic burden on countries, organizations and affect individuals and societies in a variety of ways (Umar, 2021). There are several approaches which can reduce the costs of OS&H by reducing the number accidents. One of such approaches is the presence of robust OS&H regulations and its implementation.

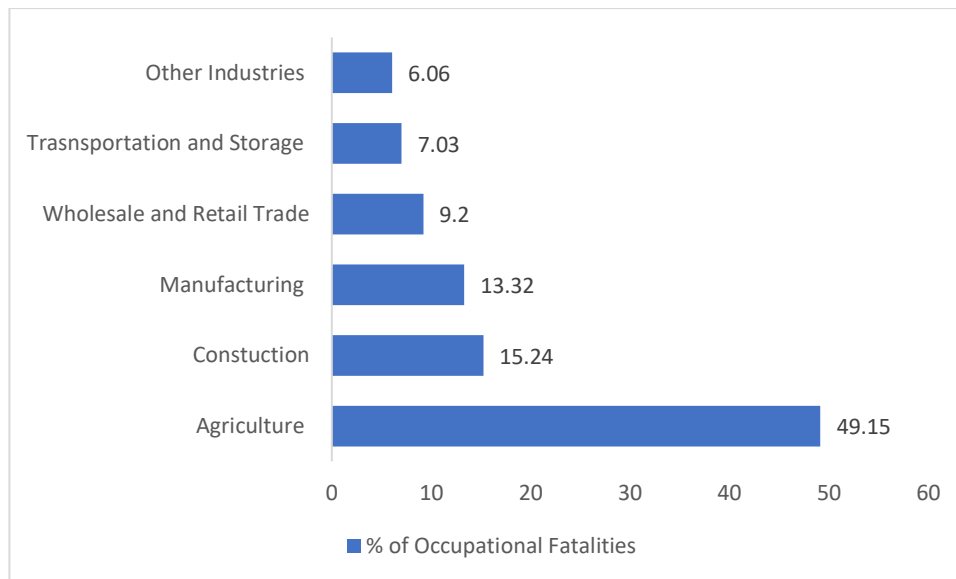


Figure 2: Occupational Fatalities in Different Industrial Sector in Pakistan (Azhar and Choudhry, 2016)

Pakistan does have regulations governing workplace safety, but enforcement is often weak, especially in the construction sector (Qayoom. and Hadikusumo, 2019). This leads to a lax attitude towards safety standards among contractors and employers. Many construction sites in Pakistan lack basic safety measures such as protective gear, guardrails, and proper scaffolding (Memon et al., 2017). These exposes workers to risks of falls, electrocution, and other hazards. Chinniah (2015) argues that outdated or poorly maintained machinery increases the risk of accidents and injuries. Such machineries are often used in construction projects in Pakistan. Workers in the construction industry may be exposed to various health hazards, including exposure to hazardous chemicals, dust, and fumes, which can lead to respiratory problems, skin diseases, and other long-term health issues Boadu et al., (2020). In Pakistan, there is either no regulations or limited implementation of such regulations to protect workers from such hazards. Workers who do not receive adequate training on safety protocols and procedures, leading to a higher likelihood of accidents (Laberger et al., 2014). Additionally, there may be a lack of awareness among workers about their rights and responsibilities regarding safety in the workplace. Workers in the construction industry in Pakistan lack of such training (Lakhiar and Lakhiar, 2021). Much of the construction work in Pakistan is carried out in the informal sector, where workers may not have access to formal safety protections or mechanisms for reporting violations Ahmed et al., 2018).

While OS&H can be improved through several interventions, there is a consensus among the researchers and practitioners that improved and up to dated legislations and regulations is one of the importance elements of such interventions particularly when it comes to developing countries (Wang et al., 2020).

3. RESEARCH METHODOLOGY

A qualitative approach with a mixed research method which includes a systematic review and semi-structured interviews with the industry professionals was used to deliver the aims and objective of this research (Booth et al., 2021; Adeoye-Olatunde and Olenik, 2021). The qualitative approach in this case was useful because it helps in exploring and understanding phenomena in-depth, often focusing on the meanings, experiences, and perspectives of individuals or groups (Teherani et al., 2015). The purpose of the systematic review was to gather and synthesize existing knowledge in a rigorous and impartial manner. Systematic reviews offer several benefits in research including but not limited to comprehensive synthesis, reduction of bias, and identification of knowledge gaps (Mallett et al., 2012). The epistemological stance for semi-structured interviews was interpretivist, recognizing the subjective nature of individual experiences and perspectives. Semi-structured interviews also offer several benefits in research including flexibility, in-depth exploration, rich data collection, participant engagement, contextual understanding, triangulation, accessibility, and iterative process (Adams, 2015).

For the systematic review, the national assembly as well as the all the provincial assembly were explored online to get the relevant legislations. Key words such as “health and safety”, “accidents”, “protections”, “hazards”, “occupational safety and health”, “occupational disease”, and “workers” were used to search

and extract the relevant information. The timeframe set for the search was 1960 till 2023. 1960 was the time when Pakistan enjoyed political stability, fostering a robust economic and industrial growth (Khan, 2007). The screening criteria adopted was as follows:

1. The regulations, acts, and guidelines issued by federal government bodies.
2. regulations issued by the respective provincial government bodies.
3. The acts and ordinances related to occupational health and safety.
4. The regulations, acts and guidelines should cover elements such as workplace safety standards, employee health and welfare regulations and emergency preparedness and response.
5. The regulations, acts and guidelines specific to various industries such as construction industry manufacturing, mining, and healthcare.
6. Identify the agencies responsible for enforcement of OHS regulations.

For semi-structured interviews the goal was to interview 5 to 10 experienced industrial professionals from construction sectors in Pakistan who have an extensive experience of the OS&H. The criteria set for the selection of respondents was that they must have at least 25 years of experience and a at least 10 years in OS&H related responsibilities. They must have both local and international understanding of the current and emerging issues related to OS&H. The potential respondents were reach out through social media such as LinkedIn and through the main construction organizations working in Pakistan. The interviews were held online using the respondent's preferred platform. The key interview questions include;

1. What is your view on the current legislations and regulations applicable in the construction sector in Pakistan.
2. What is your view on the effectiveness of the current legislations and regulations or those which will be produced in the future, is this need to be centralized or at provincial level.
3. Is the relevant legislation will solve the problem or there is something more that need to be done.
4. What would be your recommendations in order to revamp the current legislations or develop new legislations to improve the OS&H in construction sector in Pakistan.
5. Is there anything else you want to share with us.

4. RESULTS AND ANALYSIS

A total of 35 documents were extracted from the search results. After applying the screening criteria, 24 were removed and 11 as noted in table 1 were reviewed as part of this research. In relation to semi-structured interviews 25 potential participants were contracted. A reminder was sent to those after two weeks who did not respond. After two-week times, 13 showed willingness to participate in the interview. A total of six interviews were completed by March 2024. The results and analysis from both systematic review and semi-structured interviews are provided separately in the following sections.

4.1. Key Legislations and Regulations Related to OS&H in Pakistan

The main piece of legislation related to OS&H in Pakistan is the Factories Act 1934 which was amended in 1997 (Factories Act, 1934). The review of this Act reveals that "construction" has been used nine times, however, this use is limited to factories operation environment which do not cover any aspect of the construction industry or its operation. There is no specific legislation which cover OS&H in construction industry, which is also one of the main reasons for not reporting the OS&H related accidents (Raheem and Hinze, 2013). There is other several legislations that are made by National and provincial assemblies that include some aspects of OS&H in general (table 1), however, none of them were specifically designed to cover the OS&H in construction. Other countries such as United states and UK have bring significant improvement in OS&H performance by having a robust up to date regulations and organizations for implementing those regulations. For instance, in the United States worker deaths which were 38 per day in 1970 has reduced to 15 per day in 2019. Likewise, worker injuries and illness are also reduced to 2.8 incidents per 100 workers in 2019 which was 10.9 incidents per 100 workers in 1972 (OHSa, 2019). Likewise, in the UK the non-fatal injury rate reported by employers has reduced to

185 per 100,000 employees in 2019 which was 680 per 100,000 employees in 1987 (HSE, 2021). Pakistan is currently planning to establish the Construction Industry Development Board to improve the performance of construction industry, it is also important that the government develop OS&H legislations at federal level that should be applicable on all provinces of Pakistan. A regulatory body needs to be formed for making necessary regulations under the OS&H regulations and then implementing them across the country.

Table 1: OS&H Legislations in Pakistan

S.No.	Legislations	Coverage	Province	Applicable to Construction Industry
1	The Khyber Pakhtunkhwa Boilers and Pressure Vessels Act, 2016 (Act No. XXXI of 2016)	Boilers and Pressure Vessels	Khyber Pakhtunkhwa, Pakistan	Applicable to boilers and pressure vessels in all industries
2	The Balochistan Boilers and Pressure Vessels Act (Act No. XVI of 2015)	Boilers and Pressure Vessels	Balochistan, Pakistan	Applicable to boilers and pressure vessels in all industries
3	The Sindh Environmental Protection Act, 2014 (Act No.VIII of 2014)	Occupational safety and health; General provisions	Sindh, Pakistan	Applicable to all Industrial sectors including construction
4	Khyber Pakhtunkhwa Factories Act, 2013 [Act No. XVI of 2013]	Elimination of child labour, protection of children and young persons; Occupational safety and health	Khyber Pakhtunkhwa, Pakistan	Applicable to all Industrial sectors including construction
5	Factories (Amendment) Act, 2012 [No. XIV of 2012]	Occupational safety and health	Punjab, Pakistan	Applicable to all Industrial sectors including construction
6	Boilers and Pressure Vessels (Amendment) Act, 2009	Protection against particular hazards	Pakistan	Applicable to boilers and pressure vessels in all industries
7	Hazardous Substances Rules, 2003	Occupational safety and health	Pakistan	Applicable to all Industrial sectors including construction
8	Pakistan Nuclear Regulatory Authority Ordinance, 2001 (No. 3 of 2001)	Protection against particular hazards	Pakistan	Applicable to Nuclear Safety and Radiation Protection
9	Labour Laws (Amendment) Ordinance 1972 (No. 9)	Freedom of association, collective bargaining and industrial relations;	Pakistan	Applicable to all Industrial sectors including construction

		Wages; Occupational safety and health; Employment accident and occupational disease benefit		
10	Agricultural Pesticides Ordinance, 1971 (II of 1971)	Protection against particular hazards	Punjab, Pakistan	Applicable to agriculture related activities
11	Hazardous Occupation Rules, 1963 (No. 1-6 (L-II/64)	Protection against particular hazards	Pakistan	Applicable to all Industrial sectors including construction

As noted in table 1, a total of eleven legislations from national and provincial assemblies were identified, however, only six can be applicable to construction sector in general context. For example, the Sindh Environmental Protection Act, 2014 (Act No. VIII of 2014) focuses on environmental protection and management in the Sindh province of Pakistan. While its primary objective is to safeguard the environment, it has several provisions that indirectly apply to occupational health and safety (OHS) in the construction industry. For instance, the Act mandates that construction projects undergo an Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE) to assess potential environmental impacts before commencing. These assessments include evaluating potential risks to worker health and safety, such as exposure to hazardous materials, dust, noise, and other environmental hazards common in construction sites.

Likewise, the Khyber Pakhtunkhwa Factories Act, 2013 [Act No. XVI of 2013] provides a comprehensive legal framework for ensuring occupational health and safety in factories within the Khyber Pakhtunkhwa province. Although the primary focus is on factories, certain provisions and principles can be relevant and applied to the construction sector. For instance, in “General Health and Safety Provisions” sections related to cleanliness, ventilation, lighting, and sanitary conditions are applicable to construction sites to ensure workers' health.

Similarly, The Factories (Amendment) Act, 2012 [No. XIV of 2012], is an amendment to the Factories Act, 1934, and primarily focuses on improving occupational health and safety (OHS) standards within factory premises. While the Factories Act, 1934, and its subsequent amendments are primarily geared towards manufacturing and industrial facilities, some of the provisions can have implications for the construction industry, especially for any activities that fall within the definitions covered by the Act.

As discussed above, some provisions of the relevant legislations can be applicable to construction sites, however, as the main focus of the legislations is not on the OS&H, it strengthens the argument for the need of specific legislation to cover such elements in the construction context.

4.2. Interview Results

As noted above, a total of six interviews with experienced respondents were conducted. The purpose of the interview was to investigate the views of the experience professionals in construction sector in Pakistan on what needs to be done to improve the OS&H focusing mainly on the legislation and regulations in the context of Pakistan. The profiles of the interviewees are briefly provided below.

Interviewee I: A senior construction engineer in a construction organization mainly working in the transportation sector in Pakistan having more than 25 years of project management experience in the highway sector. The company in Pakistan was initially established in 1970.

Interviewee II: A senior project engineer in a construction organization working in the housing sector in Pakistan, with more than 28 years of experience of project management in building sector. The organization was initially established in 1972 and is currently registered as an “No Limit” company in Pakistan.

Interviewee III: A senior construction manager with 30 years of experience in one of the major construction companies with offices in all several south-Asian countries. The company is 100% privately

owned with more than 1,000 employees in Pakistan. The interviewee is currently working as project director of a highway construction project with an estimated cost of US\$ 200 million.

Interviewee IV: A senior construction manager with over 25 years of experience in one of the main construction companies. The organization was established in 1990 and is currently executing some of the main building projects pertaining to both the government and private sector in Pakistan. The construction manager interviewed from this organization is working on a construction project with an estimated cost of US\$ 50 million.

Interviewee V: A senior contract manager with over 25 years of experience in one of the world's leading consulting organizations, having offices in the USA, Europe, Middle East and south Asia. The organization was founded in 1945 and is 100% owned by the employee stock ownership trust, with total revenues of more than US\$3.0 billion in 2020.

Interviewee VI: A senior design consultant with more than 26 years of experience in one of the leading international consultants operating in the Middle East, Africa, Asia and Europe, with more than 10,000 staff. The interviewee is currently involved as design and supervision consultant in some of the mega road projects in Pakistan.

All the interviewees confirm that the current legislations and regulations applicable in the construction sector in Pakistan is not effective and that there is a need for legislation which specifically cover the construction sector. Interviewees four and five pointed out that current legislation mainly cover all the industrial sectors and sometimes it become almost impossible to understand which are the legal duties of construction organizations and other stakeholders when it comes specifically to the construction context.

Interviewees one and three emphasize on a legislation at federal level as it makes several issues when you have different types of legislation at provincial level. This issue become more complex for international organizations who have several projects in different provinces in Pakistan.

Interview two argued that only have a legislation will not solve the OS&H related issues in Pakistan. They pointed out the need for a regulatory body formed under such legislation which then can make more specific regulations for the construction sector. While noting this, they pointed out several such regulatory bodies in developed countries such as HSE in UK and OSHA in USA and argued the improvement these organizations have brought to OS&H in these countries. Interviewees two, five and six also pointed out that the potential government plan to establish the Construction Industry Development Board (CIDB) and argued that OS&H legislation can be easily done with the bill of CIDB.

The interviewees also provided a useful insight on how to revamp the OS&H regulations in Pakistan (table 2). The key points arising from the interviews are summarized as follows.

Table 2: Recommendations Arriving from Interviews

Key Theme of the Recommendation	Interviewees
Review of existing OSH laws, regulations, and standards in Pakistan	Interviewees 1 and 2
Enforcement of OS&H regulations	Interviewees 2, 3 and 4
Participation of workers and their representatives in OS&H decision	Interviewees 5 and 6
Public awareness and capacity building	Interviewees 1, 5 and 6
Access to quality occupational health services for workers	Interviewees 2 and 3
Support for medium enterprises (SMEs)	Interviewees 4 and 6
Collaboration among stakeholders	Interviewees 5 and 6
Assessing the effectiveness of OS&H regulations	Interviewees 1 and 4

Adopting technology and innovation to improve OS&H management systems	Interviewees 2, 3 and 6
International bench marking	Interviewees 1, 3 and 4

1. Conducting a thorough review of existing OSH laws, regulations, and standards in Pakistan to identify gaps, inconsistencies, and areas for improvement. Update the legal framework to align with international standards and best practices, taking into account emerging OSH issues and technologies.
2. Enhancing the enforcement of OS&H regulations by allocating adequate resources to regulatory agencies, increasing inspections, and imposing stricter penalties for non-compliance. Improving coordination between government departments responsible for OS&H enforcement to ensure effective implementation of regulations.
3. Encouraging meaningful participation of workers and their representatives in OS&H decision-making processes at the workplace, including the development and implementation of OS&H policies and procedures. Provide training and support to workers' representatives to effectively advocate for OS&H rights and protections.
4. Launching public awareness campaigns to educate employers, workers, and the general public about the importance of OS&H and their rights and responsibilities. Provide training and capacity-building programs on OS&H for employers, workers, OS&H professionals, and government officials to improve awareness and compliance.
5. Ensuring access to quality occupational health services for workers, including medical examinations, health surveillance, and treatment of work-related injuries and illnesses. Encourage employers to establish occupational health facilities in workplaces or provide access to external healthcare providers.
6. Recognizing the specific challenges faced by small and medium enterprises (SMEs) in implementing OS&H regulations and provide support, incentives, and technical assistance to help them improve workplace safety and health practices. Develop tailored OS&H guidelines and resources for SMEs to enhance compliance.
7. Fostering collaboration between government, employers, workers, industry associations, trade unions, NGOs, and other stakeholders to address OS&H issues collectively. Establish platforms for dialogue, consultation, and information-sharing to facilitate collaboration and partnerships.
8. Establishing monitoring and evaluation mechanisms to assess the effectiveness of OS&H regulations and interventions in improving workplace safety and health outcomes. Regularly review and update OSH policies and programs based on feedback, research findings, and evaluation results.
9. Harnessing technology and innovation to improve OS&H management systems, tools, and practices. Explore the use of digital platforms, sensors, wearable devices, and data analytics to enhance workplace safety monitoring, risk assessment, and incident prevention.
10. Aligning OS&H regulations in Pakistan with international standards and conventions, such as those set by the International Labor Organization (ILO), to ensure compatibility and facilitate international cooperation and trade.

5. DISCUSSION AND CONCLUSION:

This article has focus on the construction sector in Pakistan which has been recently given the status of industry. The government has introduced several financial incentives to attract local and foreign companies to invest in the construction industry. It is expected that by 2029 the construction industry value will reach to will reach to US\$ 15.32 billion. This expansion of the industry will bring a several challenges that also include OS&H which is commonly ignored in the developing countries without understanding its adverse implications on economy. Construction sector has the second highest fatality rate (= 15.24%) in Pakistan. The occupation injury rate in construction has reached to 17.30%. Robust OS&H regulations and its implementation can improve these indicators, however, there are currently no specific legislation exist in Pakistan which consider the OS&H in construction sector. There is other several legislations which cover some basic and general aspects of OS&H in all industrial sectors, but

their relevance to construction is quite limited. The interviews done with six experienced industry professionals also confirmed the no effectiveness of the current legislation in the context of construction sector. They argued separate legislations at federal level to cover construction industry OS&H. Such legislation needs to be made at federal all and should be applicable on all Pakistan with an independent regulatory body. The interviewees also provided some useful recommendations on the revamping of OS&H regulations in Pakistan which mainly cover the reviewing and updating existing legislation, strengthening the enforcement mechanisms, promoting worker participation and representation, raising awareness and provide training, promoting occupational health services, supporting SMEs, fostering collaboration and partnerships, monitoring and evaluating progress, incorporating technology and innovation, and ensuring compliance with international standards. Since the government has given construction sector the status of industry and is planning to establish the Construction Industry Development Board to excel construction industry in Pakistan, they also need to focus on OS&H aspects of construction and are required to do necessarily legislations, develop robust OS&H regulations, and ensure it implementation. Once the OS&H regulations are prepared and approved, the government also needs to establish an independent body to implement these regulations. This organization may also collect, analyze, and monitor the OS&H indicators to ensure the regulations in place are working effectively. Since this article provide an overview of the construction industry along with different regulations that are applicable on construction, the finding will be helpful for both local and international companies and individuals who have been attracted by the financial incentives and are interested to invest in the construction industry in Pakistan.

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