

# Occupational Health and Safety Issues in the Construction Industry in South Asia: A Systematic Review and Recommendations for Improvement

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**Abstract:** This paper explores the occupational health and safety issues faced by construction workers in South Asia, where construction is primarily conducted informally via local contractors. The study involved a systematic review of existing literature on occupational health and safety in the construction industry, with Nepal, India, and Bangladesh chosen as the focus countries. Despite the implementation of regulations and safety measures, accidents and injuries on construction sites continue to be prevalent, and there is a lack of investment in training and education programs, as well as regulatory oversight. The study identifies a lack of awareness, inadequate training, and poor working conditions as key factors contributing to the occupational health and safety issues faced by construction workers in South Asia. The paper concludes by providing recommendations to improve occupational health and safety, including greater investment in training and education programs, improved regulatory oversight, and addressing cultural and social factors that contribute to unsafe working conditions for construction workers in the region. The findings highlight the need for improved implementation of existing laws and regulations, as well as greater attention to the health and safety of construction workers in South Asia.

**Keywords:** Construction worker, Nepal, Occupational health, Occupational safety and health, OSH

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## 1. Introduction

The construction industry involves a range of activities, including building construction, repair, and alteration, which expose workers to serious health and safety risks (Hillebrandt, 2000). Unfortunately, occupational hazards are prevalent in the construction industry, with the International Labor Organization (ILO) reporting that 6,400 workers are fatally injured, and 860,000 are injured annually (Lipnicka, 2020). Furthermore, 350,000 people die from workplace accidents, 2,000,000 suffer from occupational diseases, and 160,000,000 are injured every year (Barling & Frone, 2004). In Bangladesh, the construction sector alone accounted for 27.3% of occupational deaths, with causes including building collapses, electrocution, and being crushed by objects (Olutende et al., 2021).

To address this global problem, it is crucial to raise awareness and implement preventive measures, starting with education and training programs at the national level. The United States Department of Labor provides resources to help identify, reduce, and eliminate construction-related hazards, while counseling can help workers maintain mental health during crises like the pandemic. Occupational health and safety issues among construction workers are also prevalent in Nepal, India, China, and other Asian countries, highlighting the necessity of preventive measures as industrialization grows (Ahasan & Partanen, 2001).

Despite the growing concern for worker safety, many industries continue to lack proper safety measures. For example, many workers in Nepal lack the knowledge and understanding of workplace hazards, risk factors, and ways to minimize

them, necessitating intervention at the national level. One potential solution is the use of personal cooling garments (PCGs) to protect workers from heat stress, which can lead to chronic illnesses (Ashtekar et al., 2019).

The gap in the existing literature on occupational safety and health issues among construction workers in Nepal with respect to the South Asian region is the lack of comprehensive studies and initiatives that address the unique challenges and needs of this population. Despite the high incidence of occupational hazards and fatalities in the construction industry in Nepal and the broader South Asian region, there is a dearth of research that focuses on the specific risk factors, health outcomes, and interventions for this group of workers. This gap in knowledge and action has resulted in a lack of effective policies and programs to improve the occupational safety and health of construction workers in this region. This review paper aims to explore the current state of occupational safety and health issues among construction workers in Nepal and identify the gaps and potential solutions for improvement. The novelty of this review lies in its focus on the South Asian region, which has been largely overlooked in previous studies, despite the high incidence of occupational hazards and fatalities in the construction industry.

## **2. Materials and methods**

This study aimed to explore the occupational health and safety of construction workers in South Asia by conducting a comprehensive review of the available literature. The authors, who collaborated through the Global Research Institute and Training Center (GRIT), participated in the literature review process and identified gaps in the existing research on this topic. They utilized search phrases such as 'occupational health and safety', 'health and safety of construction workers', 'Nepali construction worker', 'occupational health of construction workers in India', 'construction workers in Bangladesh', 'workplace hazards', 'global status of construction workers', and 'occupational health of construction workers in South Asia' to search for secondary literature in various databases including Google Scholar, PubMed, Academia, ResearchGate, Elsevier, and Springer. Three countries in South Asia, namely Nepal, India, and Bangladesh, were purposively selected based on their significant engagement of construction workers in the industry. The primary objective of this study was to identify the current status and policy measures regarding the occupational health and safety of construction workers in these countries.

## **3. Results and discussion**

### **3.1. Occupational health and safety issues of construction workers**

When discussing the construction sector, it encompasses a wide range of work, including the construction of buildings, roads, bridges, powerhouses, hydropower projects, irrigation systems, and sewage systems. The sector involves various roles such as technicians, scaffolders, rod binders, electricians, brick makers, and other manual laborers. Unfortunately, the situation of construction laborers is dire and similar in many South Asian countries. The importance of infrastructure development for economic growth has led to a cycle of inefficiency in both formal and informal sectors, resulting in poor working conditions and health hazards for construction workers (Nataraj, 2007).

Workers in the informal sector, who are mostly from low-income families, are often forced to work in high-risk jobs and face various problems, including workplace accidents, musculoskeletal injuries, and even death (Walter et al., 2002). They are also at risk of metal and compound poisoning, noise-induced hearing loss, pneumoconiosis, lung diseases (Christiani & Wang, 2003), and other occupational health hazards. The system of cheap labor, inadequate stress on public health, lack of OSH data and professionals, implementation of laws, and interest in the field have all increased the threat to workers' health (Pingle, 2012). Personal protective equipment (PPE) is necessary for construction workers to prevent accidents and injuries (Sehsah, El-Gilany & Ibrahim, 2020; Wong, Man, & Chan, 2020). However, lack of awareness and knowledge about the correct use of PPE is also a significant concern among waste workers and informal workers in the construction sector (Khanal, Sondhi & Giri, 2021). Informal workers are not only at high risk of occupational hazards but also do not use PPE all the time, even if they have major symptoms, they don't go to the hospital for checkups (Khanal, 2023).

In Bangladesh, the working conditions and living standards of construction workers are inhumane, despite their significant contribution to the country's economy (Rahaman & Rahman, 2021). In India, approximately 90% of the working age group works in the informal sector, including construction work, making the occupational safety and health (OSH) scenario complex. Lack of OSH data, professionals, and proper laws, coupled with inadequate stress on public health, has increased the threat of occupational hazards (Pingle, 2012).

In Nepal, the situation is similar, if not worse, as there is no data available on workplace accidents, injuries, or deaths. Scientific studies conducted in the country indicate that the overall status of occupational hazards in Nepal is unsatisfactory, and workplaces that demand physical or manual labor do not have sufficient safety or preventive measures to minimize stress, injuries, accidents, and deaths. This indicates a need for stronger interventions from the government (Joshi, 2011). Gautam and Prasain (2011) reported that approximately 20,000 workers fall victim to workplace accidents,

of which 200 lose their lives. They also noted that the male construction workers suffer from gallstones, lung cancer, and heart problems, while women experience urine and uterus infections and uterine cancer. The fatalities reported in the sector include falls, electric shocks, cuts and injuries, wall or building collapses, and uterine prolapses, among others. Additionally, those involved in construction work are not provided with medical services, compensations, or insurance.

Another significant OHS issue in the construction industry is the lack of training and awareness among workers. Many workers are not trained in the proper handling of equipment and tools, safe work practices, and emergency procedures. This lack of training and awareness makes them vulnerable to accidents, injuries, and even fatalities. For instance, a study by Devaraj et al. (2020) found that lack of training was a significant factor contributing to accidents in the construction industry in India.

Moreover, the long working hours and inadequate rest breaks are also major OHS issues faced by construction workers in these countries. Many workers work for extended periods without rest, leading to fatigue and exhaustion. This, in turn, increases the risk of accidents and injuries. Studies have shown that long working hours and inadequate rest breaks are prevalent in the construction industry in Nepal, India, and Bangladesh (Khatri et al., 2021). In addition, the working conditions in construction sites are often poor, with inadequate sanitation facilities and poor ventilation. Workers are often exposed to high levels of dust and fumes, which can cause respiratory problems and other health issues. The lack of sanitation facilities also increases the risk of infectious diseases among workers (Islam et al., 2021).

Furthermore, the use of child labor is another critical OHS issue in the construction industry in these countries. Children are often employed to perform hazardous tasks such as carrying heavy loads, working at heights, and handling dangerous equipment. This exposes them to various risks and hazards, which can cause serious injuries or even death (Khatiwada et al., 2021).

Overall, the construction sector in many South Asian countries faces significant challenges, including poor working conditions, inadequate safety measures, lack of awareness and knowledge of PPE usage, and inadequate stress on public health. Urgent interventions are required to improve the situation of the construction workers.

### **3.2. Policies related to occupation health and safety of construction workers**

In Bangladesh, policies related to Occupational Safety and Health (OSH) are designed to ensure workplace safety, accident prevention regulations, record-keeping, and planning. These policies are guided by the Bangladesh Labor Act of 2006, which requires that building and machinery be secured and owners must notify workers and the government if they pose a serious threat to workers. Owners must also seek remediation to address any hazards. The Bangladesh National OSH Policy emphasizes the need for owners to ensure maximum workplace safety by following international conventions or declarations (Akram, 2014). Furthermore, to ensure compliance with OHS regulations, the Bangladesh government has set up the Department of Inspection for Factories and Establishments (DIFE) that conducts inspections and investigations of workplaces (Ministry of Labour and Employment, 2021). The government has also committed to international agreements concerning OHS, such as the International Labour Organization's (ILO) Occupational Safety and Health Convention (No. 155) and Convention on the Worst Forms of Child Labour (No. 182).

Additionally, the government launched the National Tripartite Plan of Action on Fire Safety and Structural Integrity in the Ready-Made Garment Sector in Bangladesh (NTPA), a joint initiative among the government, employers, and workers that aims to improve fire safety and building structural integrity in the country's ready-made garment factories (International Labour Organization, 2019). This initiative strives to enhance OHS conditions in the construction industry and ensure the safety of workers while working in buildings. Furthermore, the government of Bangladesh established the "Workers' Welfare Fund" to assist workers who have suffered work-related injuries or illnesses (Government of Bangladesh, 2006). The fund provides compensation to workers for medical expenses, lost wages, and other related expenses.

India has several laws related to working hours, working conditions, and employment that aim to maintain a safe culture and environment at workplaces. The Ministry of Labor and Employment (MoLE) first adopted the Workmen's Compensation Act in 1923, followed by The Factories Act in 1948, and the Mines Act in 1952. In February 2009, the national policy on safety, health, and environment at workplaces was approved. Altogether, there are 16 laws that extensively talk about guidelines to ensure a safe and healthy work environment for all stakeholders (Saha, 2018). To regulate and oversee OHS in the mining and manufacturing sectors, the Indian government has established the Directorate General of Mines Safety (DGMS) and the Directorate General Factory Advice Service and Labour Institutes (DGFASLI). In 1996, the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act (BOCW Act) was enacted to ensure the welfare of construction workers and provide safety measures such as medical facilities, safety equipment, and accident insurance. The act also mandates the formation of safety committees and welfare boards to monitor and regulate safety measures on construction sites. To demonstrate its commitment to ensuring worker safety and well-being, India has ratified several international agreements related to OHS, including the ILO Occupational Safety and Health Convention (No. 155) and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). In 2009, the Ministry of Labour and Employment launched the National Policy on Safety, Health, and Environment at Workplace (NSHEW) to promote and ensure safe working conditions for workers in all sectors, including construction (Ministry of Labour and Employment, 2009). The policy aims to increase

awareness about safety and health issues at the workplace, identify and assess workplace hazards, and develop and implement effective safety measures.

However, there is a need to update the current policies and implement action programs to develop national standards, increase awareness, and ensure compliance. There is also a need to focus on skills development that works best with the interests of concerned stakeholders and the mobilization of resources and human resources (Saha, 2018). While the Indian constitution protects workers, including children, from exploitation and ensures humane conditions at work, this coverage only applies to the formal sector. Stakeholders have realized the need to extend OSH coverage to the informal sector by spreading awareness and developing OSH infrastructure. However, there is a lack of institutions, qualification courses, or training modules to train manpower and upskill their capacity (Saha, 2018).

In Nepal, the Labor Act (2017), the right to employment (2018), and fundamental rights ensure safety and human rights for any laborers, including construction workers. However, there is a lack of sufficient monitoring or research, with questionable implementation of the law, to create sound OSH conditions and establish a safe and efficient workplace. Gautam & Prasain (2011) suggest setting up regular health checkups for construction workers and a separate hospital to treat them to address the major obstacle around the concept of OSH in Nepal, which is the inability of stakeholders to realize the utility and importance of OSH and hold adequate surveillance or risk assessment studies. In addition to these policies, the government of Nepal has also signed various international agreements related to OHS. For instance, Nepal has ratified the International Labour Organization's (ILO) Convention on Occupational Safety and Health (No. 155) and the Convention on the Worst Forms of Child Labour (No. 182).

OSH-related policies in Bangladesh, India, and Nepal emphasize the need to ensure maximum workplace safety and follow international conventions or declarations. However, there is a need to update policies and implement action programs to develop national standards, increase awareness, and ensure compliance. While stakeholders have realized the need to extend OSH coverage to the informal sector, there is a lack of institutions, qualification courses, or training modules to train manpower and upskill their capacity. Nepal faces a major obstacle in the form of stakeholders' inability to realize the utility and importance of OSH and hold adequate surveillance or risk assessment studies. These issues must be addressed to establish safe and efficient workplaces.

Table 1: Construction workers related laws prevalent in the studied countries

Countries	Construction workers related laws
Nepal	OHS legal provisions, provided by the Labor act 1992 (2048 BS), 2017 (2074 BS)
India	Contract Labor (Regulation & operative act, 1970); Minimum wages act, 1948; Payment of wages act 1936; Equal remuneration act, 1976; Inter-state migrant workmen (regulation of employment and condition of services) act, 1979; The building and other construction workers act 1996.
Bangladesh	Bangladesh Labor Act (BLA) 2006; Bangladesh National Building Code (BNBC) 2006

#### 4. Conclusion

The situation of the construction workers is pitiful and more or less similar in the South Asian nations including Nepal, India and Bangladesh. The countries even lack data for workplace accidents, injuries or deaths occurred in the construction sector. The system of cheap labor, lack of OSH data and professionals, and lack of implementation of laws has increased the threat of construction workers. Though the studied countries have intact laws related to construction workers and talks about occupational health and safety of the workers but fails in the implementation. Overall, while challenges still exist in ensuring the full implementation and enforcement of these policies and regulations, the efforts of the governments of Nepal, India, and Bangladesh demonstrate a commitment to improving the occupational health and safety of construction workers in these countries.

The paper suggests that urgent interventions are required to improve the situation of construction workers. Policies related to OSH have been designed in Bangladesh to ensure workplace safety and accident prevention regulations, record-keeping, and planning. However, the implementation of these policies needs to be improved. In Nepal, there is a need for stronger interventions from the government to improve the overall status of occupational hazards, and workplaces that demand physical or manual labor must have sufficient safety or preventive measures to minimize stress, injuries, accidents, and deaths. In India, the lack of OSH data, professionals, and proper laws, coupled with inadequate stress on public health, has increased the threat of occupational hazards. The paper highlights the need for a comprehensive approach to addressing the occupational health and safety issues faced by construction workers in South Asian countries.

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