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EXAMINING HEALTH AND SAFETY MANAGEMENT AMONG FOREIGN CONTRACTORS IN SRI LANKA: GAPS, BARRIERS, AND IMPROVEMENT STRATEGIES

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ABSTRACT

The construction industry is one of the most hazardous sectors, with frequent workplace accidents and safety violations, particularly in developing economies. Foreign contractors play a crucial role in addressing skill shortages, introducing advanced technologies, and managing large-scale infrastructure projects beyond the capacity of local firms. This study investigates the health and safety (H&S) practices followed by foreign contractors in Sri Lanka, identifying regulatory gaps, implementation challenges, and areas for improvement. A mixed-methods approach was employed, incorporating a questionnaire survey of 40 construction professionals and semi-structured interviews with six foreign contractors. The questionnaire assessed current H&S practices, risk assessments, and regulatory compliance, while the interviews provided in-depth insights into enforcement challenges and managerial perspectives on safety policies. The findings reveal several critical gaps in H&S implementation. While foreign contractors generally maintain structured H&S policies, 28% of surveyed firms lacked formal risk assessment procedures, and 33.3% did not conduct regular safety audits, indicating inconsistencies in compliance. Top management engagement was limited, with some executives participating in safety meetings only monthly. Furthermore, 48% of organizations did not provide structured H&S training, leading to low worker awareness and adherence to safety protocols. Financial constraints emerged as a major barrier, and it effect affecting the procurement of safety equipment, training programs, and site inspections. Additionally, contractual provisions for H&S were found to be inadequate, as many firms lacked strict enforcement mechanisms. This study highlights the need for enhanced policy enforcement, increased safety training, improved communication system, and better financial allocation for H&S programs to improve workplace safety and regulatory compliance in Sri Lanka's construction industry.

Keywords: *Construction Safety; Foreign Contractors; Health and Safety (H&S); Regulatory Compliance; Risk Assessment.*

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1. INTRODUCTION

Ensuring a safe working environment is a fundamental concern for all industries, particularly in sectors where occupational hazards are prevalent (Badri et al., 2018). The construction industry is widely recognized as one of the most hazardous sectors, with high rates of workplace accidents, fatalities, and injuries (Trillo-Cabello et al., 2021). Establishing and maintaining robust health and safety (H&S) measures is crucial not only for safeguarding workers' well-being but also for optimizing workforce efficiency and reducing construction costs (Jannadi & Almishari, 2003). However, implementing safety measures in the construction sector remains a persistent challenge due to the dynamic nature of construction activities, complex work environments, and frequent changes in site conditions (Sousa et al., 2014).

Globally, the construction industry records the highest percentage of work-related accidents, including fatalities and severe injuries (Carrillo-Castrillo et al., 2017). Studies indicate that industrial accidents in construction have both social and economic repercussions, affecting not only project stakeholders but also the overall economy (Rubio et al., 2005). Despite these risks, safety management is often neglected by contractors and project owners, with cost considerations frequently prioritized over H&S compliance (Winge et al., 2019). However, in accordance with Mitchell (1995), safety is directly linked to project costs, as a proactive safety culture reduces financial losses associated with injuries, delays, insurance claims, and legal liabilities.

To mitigate risks and hazards, contractors must implement comprehensive safety measures, including fall protection systems, fire prevention strategies, structured site arrangements, and frequent safety inspections conducted by qualified personnel (Åsgård & Jørgensen, 2019). When safety standards are prioritized, contractors benefit from lower insurance costs, fewer project delays, and increased productivity, ultimately improving profit margins (Sousa et al., 2014). Moreover, a well-structured safety management system leads to higher efficiency, fewer rework incidents, and improved project timelines, ensuring better outcomes for both contractors and clients (Alkaissy et al., 2020).

Clients play a critical role in promoting H&S compliance by ensuring that contractors adhere to strict safety regulations. The inclusion of H&S requirements in construction contracts serves as an effective tool for reinforcing compliance and risk management (Alkaissy et al., 2020). Contractors with robust safety management systems are often more reliable and cost-effective choices, even when their initial bids are higher than competitors with weaker H&S policies (Winge et al., 2019). Weak enforcement of H&S regulations not only elevates risks but also inflates the final cost of construction projects, ultimately impacting the project's overall value (Winge et al., 2019).

Given the high-risk nature of construction, it is critical to investigate why safety measures are often overlooked and how regulatory frameworks can be enhanced to improve H&S standards in the industry. This study aims to address gaps in health and safety practices among foreign contractors operating in Sri Lanka's construction industry by identifying challenges, identifying current safety measures, and proposing a structured framework for improvement.

2. LITERATURE REVIEW

The construction industry is a key driver of economic growth, particularly in developing nations like Sri Lanka (Samaraweera & Gunawardhana, 2020). It provides essential infrastructure while contributing to employment and economic stability (Moavenzadeh, 1978). However, the sector is also one of the most hazardous, with frequent workplace accidents and safety violations (Shafique & Rafiq, 2019).

Construction safety refers to minimizing risks that could lead to injuries, fatalities, or property damage (Sanders et al., 2020). While absolute accident prevention is unrealistic, structured safety management systems can significantly reduce hazards. The involvement of foreign contractors in Sri Lanka's construction sector has introduced new safety standards, but their adaptation to local regulatory and cultural contexts remains a challenge (Oh et al., 2019).

2.1 FOREIGN CONTRACTORS IN SRI LANKAN CONSTRUCTION

Sri Lanka's economy has grown since the end of the war, which has led to more major infrastructure projects. This has made the government more dependent on foreign contractors and foreign workers, especially from Bangladesh, India, and China. According to industry studies, foreign companies particularly Chinese ones are well represented in Sri Lanka's construction industry. For example, the Ceylon Institute of Builders (CIOB) stated in 2018 that almost 40% of all building projects in the nation were carried out by Chinese workers, and they cautioned that this percentage would increase to 70% in the years to come (Oxford Business Group, 2019). The demand for foreign contractors in Sri Lanka has risen due to a shortage of skilled labour, increasing construction costs, and technological limitations (Maqsoom et al., 2014). Large-scale projects such as highways, power plants, and ports often require expertise and funding beyond the capacity of local firms (Jiang, 2020).

This trend is also influenced by global financial institutions such as the Asian Development Bank (ADB). ADB granted a LKR 60 billion loan in 2024 to assist the development of renewable energy and rebuild Sri Lanka's power grid, two projects that usually include foreign contractors (Asian Development Bank, 2024). Stronger economic ties with countries such as China, Qatar, Spain, and Singapore have increased foreign investments in infrastructure projects (Sethi et al., 2019).

Moreover, Foreign contractors bring modern safety practices but integrating them into local regulatory framework poses challenges (Wedagedara & Dissanayake, 2024). Collaboration between local and foreign firms is often necessary to balance international safety standards with local conditions (Bandara et al., 2018).

2.2 COST IMPLICATIONS OF HEALTH AND SAFETY

Occupational safety is not just about preventing injuries but also ensuring workers' physical, mental, and social well-being (Sinyai & Choi, 2020). The dynamic nature of construction projects increases risks, especially in environments with inconsistent safety enforcement (Liao., 2021). Effective health and safety (H&S) policies, including structured safety audits, worker training, and protective equipment are essential for reducing risks (Singh & Misra, 2021).

Construction accidents impose significant financial burdens, including medical costs, legal penalties, project delays, and loss of productivity (Hoła et al., 2017). Weak H&S management increases insurance claims, worker compensation expenses, and contract disputes (Madsen et al., 2020). Studies show that firms either pay for accidents through unexpected costs or invest in structured safety plans to reduce financial risks (Gwimbi et al., 2020). Furthermore, Amissah et al. (2019), explained that investing in risk mitigation strategies, emergency preparedness, and worker training minimizes long-term financial losses. Therefore, safety is not just a legal obligation yet a cost-effective business strategy (Kineber et al., 2023).

2.3 HEALTH AND SAFETY REGULATIONS IN SRI LANKA

While Sri Lanka has legislation to regulate workplace safety, enforcement remains weak, leading to poor compliance (Wedagedara & Dissanayake, 2024). The Factories Ordinance No. 45 of 1942 governs workplace safety but lacks industry-specific enforcement mechanisms for construction (Ministry of Labour and Labour Relations, 2014). Several global safety frameworks, such as the Occupational Safety and Health Act (OSHA, USA, 1970) and the Health and Safety at Work Act (HSWA, UK, 1974), provide structured safety management approaches (Almond & Esbester, 2019). However, Sri Lankan safety laws have been adapted from international frameworks without proper localization, reducing their effectiveness. Strengthening localized safety policies and stricter enforcement mechanisms is necessary for improving workplace safety (Kodur et al., 2020).

Effective H&S management is a core aspect of project success, requiring structured risk assessment, compliance monitoring, and worker engagement (Winge et al., 2019). The construction industry is increasingly integrating safety management into broader project frameworks due to its impact on cost control, productivity, and legal compliance (Kineber et al., 2023). A strong safety culture ensures that contractors focus on accident prevention rather than reactive responses, reducing long-term financial risks and improving site safety (Onukwulu et al., 2024). Safety must be treated as a core component of quality management, integrating project planning, training, and compliance auditing (Hettiarachchi & Coomasaru, 2019).

2.4 CHALLENGES TO MAINTAIN HEALTH AND SAFETY MANAGEMENT AMONG FOREIGN CONTRACTORS IN SRI LANKA

Due to systemic gaps, cultural misalignments, and communication difficulties, foreign contractors in Sri Lanka's construction sector confront a number of health and safety issues. Language barriers frequently make it more difficult to share instructions and conduct efficient safety briefings, which raises the possibility of accidents (Nawarathna et al., 2023; Alamouti, 2017; Weerasinghe & Ekanayake, 2012). Conflicting safety attitudes and a unwillingness to adopt practices like the usage of Personal Protective Equipment (PPE) are caused by cultural differences between foreign and local teams (Nawarathna et al., 2023; Weerasinghe & Ekanayake, 2012). Furthermore, foreign laborers face dangerous jobs and poor living circumstances, while international professionals who are not conversant with Sri Lanka's climate report feeling exhausted and performing worse (Nawarathna et al., 2023; Weerasinghe & Ekanayake, 2012). The appropriate use of safety tools offered by foreign partners is further weakened by local

staff members' lack of technical training. Lastly, unclear policies and uneven enforcement across joint ventures weaken responsibility and make risk management more difficult.

3. RESEARCH METHODOLOGY

The study employed a mixed-methods approach to comprehensively examine construction safety practices in Sri Lanka, combining quantitative data from a structured questionnaire with qualitative insights from semi-structured interviews and literature findings. The research was conducted in three stages: an extensive literature review to identify existing safety standards and gaps, data collection through surveys and interviews with construction professionals and safety experts, and data analysis using statistical and thematic methods. A purposive sampling strategy was used to ensure that participants having the relevant and in-depth knowledge of occupational health and safety in construction sector. For the questionnaire, 40 professionals were chosen based on their direct involvement in construction management, site supervision, or safety control, with representation from both local and foreign-led projects The purpose of this was to guarantee contextual relevance and document a range of real-world events. Participants in the interviews were also chosen based on their specific knowledge of international project coordination, safety rules, and compliance enforcement. Perspectives from individuals who are most knowledgeable about the regulatory challenges and compliance gaps particularly with regard to foreign contractors were to be gathered.

The collected quantitative data were analysed using descriptive statistical methods to identify trends and general patterns, while qualitative semi-structured interview transcripts were analysed using thematic analysis, allowing for the identification of key themes and recurring issues. This triangulated approach ensured a robust and nuanced understanding of the safety landscape, allowing the study to identify practical challenges and propose strategic improvements for enhancing Health and safety compliance within foreign-led construction projects in Sri Lanka.

4. DATA ANALYSIS AND DISCUSSION

The data analysis and the discussion are made while using the data collected through the questionnaire and the interviews. The findings are evaluated in relation to the study's objectives, focusing on health and safety (H&S) practices, regulatory challenges, and areas for improvement in foreign contractor projects in Sri Lanka. A total of 26 responses were received from the questionnaire survey after multiple follow-ups, while six expert interviews were conducted with professionals employed under foreign construction organizations.

4.1 ANALYSIS AND FINDINGS OF THE QUESTIONNAIRE SURVEY

The questionnaire survey was designed to assess the effectiveness of H&S regulations, current industry practices, and compliance levels among construction professionals with regard to the practices of international contractors. The responses provide insights into existing safety management systems, accident prevention measures, and challenges in implementing safety protocols. The collected data serves as a foundation for developing an improved regulatory framework for Sri Lanka's construction industry.

4.1.1 Demographic Information

The demographic section of the survey evaluated participants' professional backgrounds, experience levels, and project involvement. The findings indicate that the respondents represented a diverse cross-section of the construction industry, ensuring a comprehensive perspective on health and safety practices.

An equal number of respondents were employed under local and foreign contractors, allowing for a comparative analysis of safety practices. The majority of professionals (72%) were involved in building construction, while others worked in infrastructure, road construction, and consultancy. The questionnaire was distributed among safety officers, quantity surveyors, project managers, and engineers. The largest group consisted of safety officers and safety managers (38%), reflecting their direct involvement in construction site safety. A significant portion (60%) had less than five years of experience, while 24% had over ten years of experience. This mix ensures that the survey captures perspectives from both early-career and senior professionals. The survey revealed that 76% of professionals held bachelor's degrees, while a smaller group had postgraduate qualifications. Some professionals with diplomas or national certifications had over ten years of experience, highlighting the role of experience in safety management.

4.1.2 Health and Safety Management Practices

The second section of the survey examined H&S policies, safety meeting participation, training, risk assessments, and emergency preparedness. All surveyed organizations, except one local contractor, had internal safety management systems in place. This suggests that most companies recognize the importance of H&S management, although implementation quality may vary. All organizations conducted regular safety meetings, but their frequency varied. The majority (50%) held weekly meetings, while some foreign contractors conducted daily meetings. However, top management attendance was low, with some leaders participating only once a month. The presence of first aid kits was universal, and all organizations mandated the use of personal protective equipment (PPE). However, some professionals noted that workers had to be reminded or compelled to wear PPE, indicating gaps in safety enforcement. All organizations conducted site inspections, but methods varied. Many inspections were still performed using traditional pen-and-paper methods, which may limit efficiency and record-keeping accuracy.

The survey found that most organizations provided insurance policies for workers, except for 8.7% of local firms. The presence of insurance is critical in managing accident-related liabilities. While all foreign contractors employed qualified safety officers, 20% of local contractors did not. This shortage poses a significant risk, as qualified professionals are essential for safety compliance and hazard prevention. The results revealed that 48% of organizations did not provide structured safety training sessions, including 10% of foreign firms. Training is vital for ensuring worker safety, and the lack of training suggests a reactive rather than proactive approach to safety management. The survey showed that 72% of firms conducted risk assessments, while 28% lacked formal risk assessment processes. Without structured assessments, accident prevention efforts remain inadequate. The majority (84%) had emergency rescue plans, but 18% of local contractors did not, whereas all foreign contractors had structured response procedures.

4.2 ANALYSIS AND FINDINGS OF EXPERT INTERVIEWS

Expert interviews were conducted with six professionals currently employed in foreign construction firms, all having over five years of experience in safety management, site supervision, or project management. Given their frontline exposure to construction site safety challenges, their insights help refine the research findings and identify areas for improvement.

4.2.1 Key Challenges Identified

Interviews highlighted several critical issues affecting H&S management in foreign contractor projects in Sri Lanka. Under that, 75% of participants pointed out differences in local regulatory expectations, where foreign contractors resisted aligning their international safety standards with the less strictly enforced local regulations, often resulting in misperception and inconsistent implementation on site. Moreover, interviewees noted that language barriers posed major communication gaps, particularly in conveying safety procedures to local workers, and this was considered risky in high-hazard environments where clear understanding is important to accident prevention.

Further, interviewees were divided on whether contractual terms adequately covered H&S issues. While some professionals believed that existing contracts were sufficient, the majority argued that contracts lacked provisions for proactive safety management, leading to inconsistent enforcement. Most interviewees (83.3%) stated that funds allocated for H&S were insufficient, which negatively impacted the procurement of safety equipment, training programs, and site inspections. The lack of financial commitment to safety remains a major barrier to effective implementation.

Several interviewees were unaware of how often their organizations updated H&S policies, indicating a lack of communication and enforcement. Some stated that updates only occurred when the working environment changed rather than at regular intervals. Project managers, who are responsible for overall site safety, often lack the time or awareness to actively address H&S concerns. This disconnect between project execution and safety planning further weakens compliance. Only 33.3% of foreign firms conducted regular safety audits, while others did not prioritize this practice. Audits are crucial for identifying hazards, tracking compliance, and ensuring continuous improvement.

4.2.2 Strategies to Improve the Safety Management of Foreign Contractors

Based on the findings, a comprehensive framework was proposed to enhance health and safety (H&S) management for foreign contractors operating in Sri Lanka under the project level, organizational level, and the industry and national level. Under the findings, 78% of interviewees highlighted the importance of aligning foreign contractors' safety standards with local regulations through collaborative workshops and regular consultations with authorities. At the same time, 81% highlighted the need to conduct project-specific safety training to fill the practice gaps. To strengthen operational control, delegating H&S responsibilities across all levels of management was recommended, ensuring that safety is converted to a shared obligation. Moreover, 66% of respondents supported the implementation of digital tools for real-time monitoring and real-time coordination of safety compliance. Additionally, provisions must be needfully allocated to cover safety equipment, inspections, and training, as mentioned by 83.3% of participants who cited financial limitations as a challenge to effective H&S management.

The need to engage subcontractors and site workers to build a shared safety culture and enhance communication was also recommended by the interviewees.

Further, their recommendations included the implementation of clear contractual terms and conditions to support a safe working environment and the introduction of route safety training at the beginning of each project. Respondents also emphasized the need to update health and safety policies not only in response to emerging challenges but also whenever organizational procedures change to ensure consistency and relevance.

4.3 PROPOSED FRAMEWORK FOR IMPROVING HEALTH AND SAFETY PRACTICES

Based on the summary of findings by using the data collected through the literature review, a questionnaire and interview to improve the framework for improving Health and safety measures in foreign contractor projects in Sri Lanka is proposed. Figure 1 below, presents the framework.

This framework offers strategies to address the identified challenges faced by the foreign contractors operating in Sri Lanka at three significant levels: project level, organizational level, and industry or national level. At the project level, it proposes practical measures to enhance on-site safety practices, training, and supervision. At the organizational level, it highlights the importance of developing robust safety management systems, promoting leadership commitment, and fostering a safety-oriented work environment. At the industry or national level, it calls for greater regulatory enforcement, standardized safety protocols, and increased collaboration among stakeholders. Mutually, these strategies aim to strengthen the overall safety culture, develop regulatory compliance, and significantly reduce accidents within Sri Lanka's construction industry once they collaboratively work with foreign contractors

Moreover, the framework is particularly applicable to projects involving international construction organizations because it identifies challenges that are specific to Sri Lanka, like the need for improved incorporation of global systems into local workflows, disparities in safety standards and enforcement procedures, and communication and language barriers between local employees and foreign contractors. The foreign contractors can better adjust their operations to Sri Lanka's regulatory and cultural context by implementing practical techniques including policy alignment workshops with national agencies such as CIDA, NIOSH, digital monitoring tools, and multilingual safety briefings.

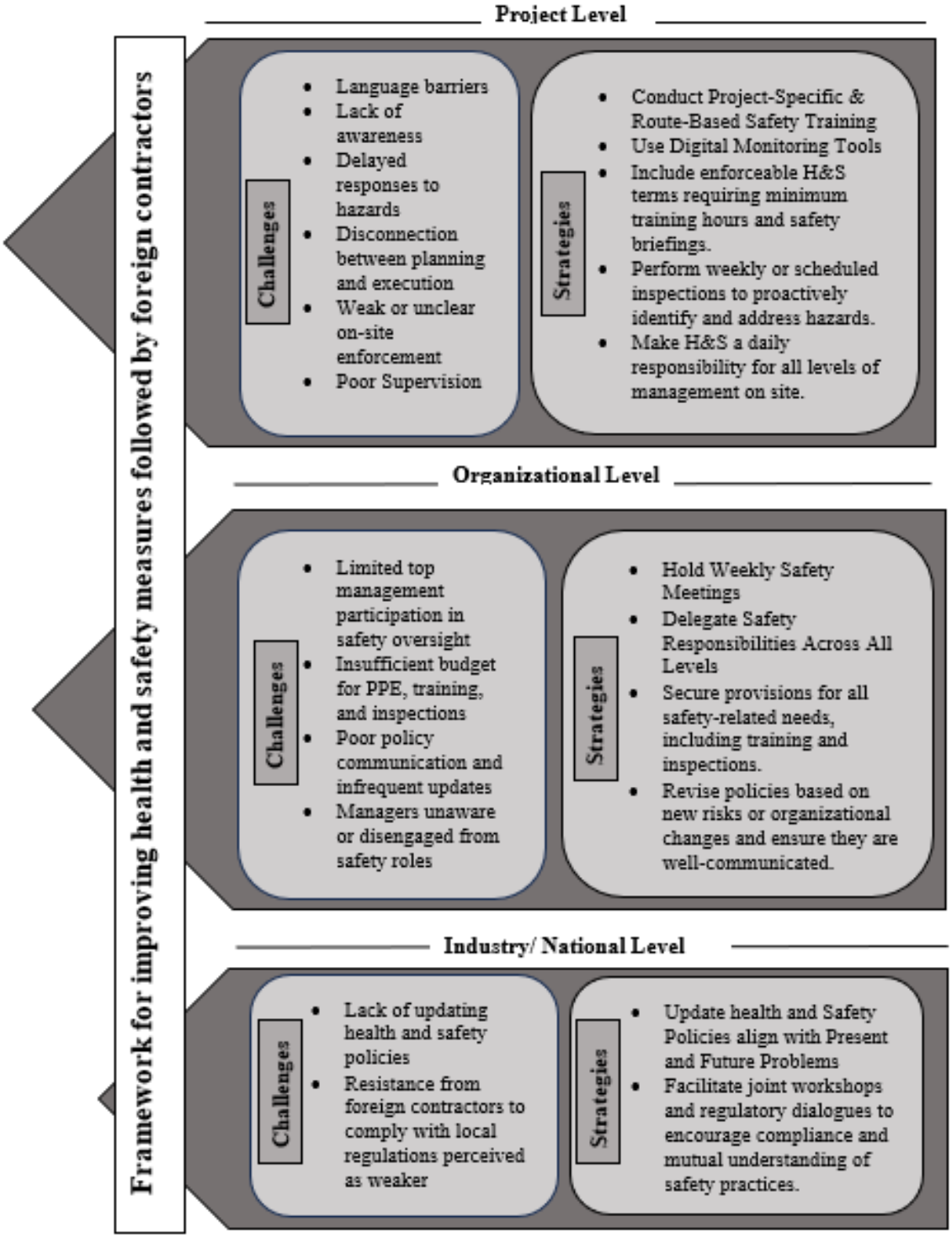

Figure 1: Framework for improving health and safety practices

5. CONCLUSION

The study confirms that foreign contractors generally have structured H&S management systems, with nearly all firms implementing internal safety policies, conducting regular safety meetings, and ensuring the use of personal protective equipment (PPE). However,

gaps remain in risk assessment practices, safety audits, and emergency planning, with 28% of surveyed firms lacking structured risk assessment procedures and 33.3% of foreign firms failing to conduct safety audits. These deficiencies highlight the need for enhanced monitoring and enforcement mechanisms to ensure sustained compliance with safety standards.

A critical issue identified was the low participation of top management in safety-related activities. While 66.7% of professionals reported that all employees attended safety meetings, top management engagement remained limited, with some organizations only involving senior personnel in safety meetings once a month. This lack of leadership involvement contributes to inconsistent enforcement of safety policies and limited investment in long-term safety improvements. The study also found that 48% of firms did not conduct structured H&S training programs, including 10% of foreign firms. Without adequate training, employees are less aware of safety protocols, increasing the likelihood of workplace accidents. The absence of well-defined training frameworks and periodic skill enhancement programs further weakens safety implementation.

Financial constraints emerged as a major barrier to effective H&S management. A significant 83.3% of interviewees indicated that funding allocated to safety measures was inadequate, affecting the procurement of safety equipment, training initiatives, and site inspections. This reflects a broader industry challenge where safety is often deprioritized in favour of cost savings, despite the long-term financial and reputational risks associated with workplace accidents. Another notable finding was the limited awareness of H&S policy updates among construction professionals. While some firms updated their policies based on project requirements, many professionals, particularly at middle management levels, were unaware of policy changes. This disconnect suggests a lack of communication within organizations, reducing the effectiveness of safety interventions.

In terms of regulatory challenges, expert interviews revealed that contractual provisions for H&S compliance are often inadequate. While some contractual clauses address safety requirements, they are not always enforced, leading to inconsistencies in implementation. The absence of strict penalties for non-compliance further weakens the impact of these provisions. Although foreign contractors generally outperform local firms in safety compliance, both groups struggle with systemic regulatory weaknesses. The study highlights that Sri Lanka's regulatory framework lacks stringent enforcement mechanisms, contributing to variable compliance levels across construction projects. While this study provides valuable insights into foreign contractor safety practices, it is limited by its sample size and geographical focus. Future research could expand the scope to include more diverse construction firms and analyze cross-country safety benchmarks.

Overall, the findings underscore the urgent need for strengthened policy enforcement, enhanced training initiatives, and greater management accountability. While some firms demonstrate strong safety practices, addressing the gaps in risk assessments, audits, and financial investment is essential for long-term safety improvements in Sri Lanka's construction sector.

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