Occupational Safety And Health (OSH) for Subcontractors and Daily Casual Workers in Indonesian Construction

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ABSTRACT

The construction industry has one of the highest rates of occupational accidents in Indonesia. Ironically, the majority of the construction workforce consists of subcontractors and casual workers (PHL), who tend to work without adequate job protection. This article aims to examine legal gaps in OHS protection for these groups of workers, analyse risk patterns and implementation barriers, and provide policy recommendations to strengthen the OHS protection system comprehensively. The research employs a normative-juridical approach combined with empirical-juridical (socio-legal) elements. The normative approach examines the regulatory aspects and legal doctrines that govern occupational safety and health (OHS) in the construction sector, with a particular focus on the protection of subcontractors and casual workers. The empirical approach involves understanding field practices through case studies of workplace accidents, investigative reports and the actual conditions of labour structures in construction projects. The study reveals that, despite having a relatively comprehensive OSH regulatory framework, Indonesia's protection for subcontractors and casual workers remains inadequate due to weak implementation and oversight. These legal gaps include the absence of explicit obligations for main contractors to supervise subcontractor OSH, a lack of specific regulations for casual workers, gaps in OSH supervision, an absence of a project worker registration system and minimum training standards. Strengthening main contractor responsibilities and subcontracting standards, and improving OSH culture, are key to ensuring that all construction workers are effectively protected.

KEYWORDS:

Occupational Safety and Health (OSH), Subcontractors, Casual Workers, Construction Projects

I. INTRODUCTION

Construction is a vital sector that significantly improves national economic development. Infrastructure development, including roads, bridges, buildings, dams, and other public facilities, serves as a catalyst for economic growth in various regions of Indonesia. Despite its significant contribution, the construction sector remains one of the industries with the highest rates of occupational accidents [1]. According to the Social Security Administrator for Employment (BPJS *Ketenagakerjaan)* [2], the construction sector contributes to a significant number of workplace accidents annually. This higher risk is directly related to project complexity, the utilization of heavy machinery, hazardous work environments, and the multi-layered employment chain between primary contractors and subcontractors [3]–[5]. Construction projects also pose risks to workers , which entails high-risk work, including working at heights, lifting heavy objects, operating heavy machinery, welding, and working in confined spaces [5].

The inherent high risk of construction work is exacerbated by the worker structure employed [4]. Most construction work is performed by subcontractors and daily casual workers (PHL)[6], who typically possess temporary job status and improperly recorded employment agreements. The subcontractor chain system in construction projects results in a fragmentation of safety responsibilities [6][7]. Main contractors often delegate the work to secondary or third

subcontractors, while OSH supervision is insufficiently implemented at all these tiers.

The workforce group that is also very vulnerable to construction project risks is casual daily workers (PHL)[6]. PHL are generally recruited based on daily needs, without written agreements, and without a track record of occupational health and safety training and adequate social security. This leaves workers in a vulnerable legal and economic position in the event of a workplace accident. According to reports from national [8] and international institutions [9], [10], many cases of work accidents such as falling from heights, being hit by materials, being electrocuted, or being exposed to mechanical hazards from heavy equipment occur among informal workers or small-scale subcontractors. This shows that the implementation of the OSH system has not been evenly implemented throughout the construction project chain. On the other hand, these informal workers cannot access work accident insurance services or receive adequate compensation. This is because there is no proof of employment or not being registered in the social security program.

Many reports from national and international agencies confirm that many fatal accidents in the construction sector involve informal workers or small subcontractors. This group of workers is most frequently affected by accidents, including falling from heights, being struck by objects, electrocution, or exposure to mechanical risks from heavy machinery. This indicates that the implementation of the OSH system has not been consistent over the whole construction project chain. Several legal provisions regulate occupational safety obligations in the construction industry[7]. Nonetheless, these provisions predominantly focus on formal employment relationships between companies and permanent workers. There are still regulatory gaps governing the protection of subcontractor workers and casual daily workers. OSH protection and supervision, especially for small-scale subcontractor workers and casual workers, is still weak. Efforts to create a safe, healthy and fair working environment for all workers in the construction sector are a serious challenge. A strong legal framework and clear supervision mechanisms are needed to protect occupational security, safety and health among subcontractor workers and casual daily workers.

Previous studies generally explains occupational safety and health (K3) regulations in general [11]–[13] and is limited to explaining K3 regulations for subcontractor workers [7], [14], especially for casual daily workers in construction projects in Indonesia. The novelty of this research is related to occupational safety and health (K3) regulations for subcontractors and casual workers in construction projects in Indonesia. Therefore, an in-depth study on OHS protection for them is very important to be carried out, especially in the context of improving national policies and encouraging the implementation of a more inclusive OHS system. This study aims to: (1) Review regulations governing OHS in construction and their relevance to subcontractors and PHL workers, (2) analyze legal gaps and weaknesses in the OHS monitoring system, and (3) provide policy recommendations to strengthen OHS protection comprehensively in the subcontractor chain.

This study uses the Legal Protection Theory (providing workers with safe rights), the Legal Certainty Theory, and the Legal Responsibility Theory. Based on the Legal Protection Theory proposed by Philipus M. Hadjon[15], workers have the right to OSH protection as part of human rights and constitutional rights, which aims to protect physical and mental safety. The Legal Certainty Theory proposed by Gustav Radbruch is implemented through clear laws and regulations [16]. Based on the Legal Responsibility Theory by Hans Kelsen, employers are required to provide a safe management system and work environment, with consequences ranging from administrative to criminal sanctions in the event of negligence [11].

1.1 Occupational Safety and Health (OSH)

Occupational Safety and Health (OSH) is a field aimed at the prevention of workplace accidents, occupational diseases, and other negative consequences resulting from working. Within the construction industry[17], the OSH includes not only technical safety aspects but also risk management, worker behavior, and safety culture[18].

Theoretically, the implementation of OHS comprises several primary approaches[19]:

1. Engineering Approach

This methodology emphasizes the significance of hazard mitigation by technical engineering, including the use of safe equipment, standardized scaffolding installation, fall protection, machine locking systems, and workplace ventilation. In construction, this approach is essential, since many accidents occur due to the failure of temporary structures, damaged equipment, or inattention to technical protocols.

2. Administrative and Risk Management Approach

This method highlights the importance of safety planning, the formulation of Standard Operating Procedures (SOPs),

training, supervision, and audits. The OSH Management System (SMK3) also falls under this approach. In construction, this approach is generally the obligation of the main contractor; however, it has not been completely implemented by small subcontractors.

3. Behavior-Based Safety (BBS) Approach

This approach claims that worker behavior is an essential factor in accidents. BBS programs aim to establish a safety work culture through supervision, rewards, and safety communication. The approach is relevant yet challenging to implement for daily workers lacking basic training[20].

In construction projects, these three approaches have generally been implemented by large contractors, but their overall application by small subcontractors is still limited, due to economic scale efficiency, lack of basic training, and the characteristics of informal daily casual workers.

1.2 Subcontractual Model in the Construction Industry

The modern construction industry globally employs a subcontracting chain model[3]. Large projects involve a main contractor who distributes the work to several subcontractors. Subcontractor types include specialist subcontractors, such as those doing mechanical, electrical, or plumbing work; general subcontractors who manage structural or finish work on a small scale; and labor-only subcontractors, who provide only workers without equipment or materials. Informal subcontractors refer to labor groups that are hired without the use of a formal administrative system. This model offers flexibility but presents risks due to the potential fragmentation of OSH responsibility. Main contractors frequently assume that each subcontractor is responsible for their workers' occupational safety and health; however, smaller subcontractors generally lack the necessary resources or experience to implement OSH standards effectively. Some international studies reveal[10] that most accidents involve workers in the second or third tier of the subcontractor chain, as they lack the equivalent training, supervision, or protections as the main contractor's workers.

1.3 Informal and Vulnerable Workers in the Construction Industry

Casual daily workers are the informal workers who do not have formal employment relationships and administrative documentation[6]. In labor theory, informal workers are categorized as vulnerable workers due to their lack of social protection, regulation of working hours, occupational safety rights, and stable employment. The main characteristic of vulnerable workers is their economic dependence on the employer and their inability to reject hazardous working conditions. In construction projects, daily workers are frequently hired by foremen without proper documentation. This pattern results in their frequent absence from OSH training or participation in safety inductions. According to ILO research[6] , informal workers have a 2–3 times higher risk of fatal accidents compared to formal workers, due to limited access to training and safety equipment.

II. METHODOLOGY

This study applies a normative juridical approach integrated with socio-legal empirical elements[21]. The normative approach analyzes the regulatory aspects concerning occupational safety and health (OSH) within the construction industry. The empirical approach is employed to comprehend field practices using case studies of work accidents, investigation reports, and the actual conditions of the employment system in construction projects. Case analysis allows researchers to understand general patterns of K3 violations and the impact of legal gaps. Case analysis based on secondary data and official reports from institutions such as BPJS Employment and the Ministry of Manpower. This dual methodological approach was used because OSH issues for subcontractor workers and casual daily laborers cannot be examined exclusively from a regulatory perspective. Many problems emerge specifically from inadequate implementation and unrecorded informal employment relationships, requiring an empirical approach to achieve a thorough understanding.

This study utilizes two types of data sources: primary legal materials and secondary legal materials. Primary legal materials include relevant regulations and laws related to occupational safety, employment, the construction industry, and labor social security. Primary materials are used to examine the legal responsibilities of parties in construction projects. Secondary legal data include scientific literature, research journals, reports from national and international institutions, studies on construction work accidents, OSH textbooks, and policy analysis documents. Secondary materials provide conceptual and analytical perspectives to comprehend the position of subcontractors and casual daily workers within the employment system. Tertiary legal materials contain legal dictionaries, encyclopedias, and supplementary materials that elucidate technical and legal terminology.

Data analysis is conducted by descriptive qualitative analysis, following these steps: classifying legal materials and

empirical data based on research variables including employment structure, OSH risks, regulations, and legal gaps; comparing legal standards with implementation: examining the legal gap and inadequacies in OSH implementation, and formulating recommendations according to research findings. The analysis is carried out systematically to answer the research questions logically and comprehensively.

III. RESULTS AND DISCUSSION

3.1 Analysis of the Employment Structure for Subcontractors and Casual Daily Workers

The modern construction industry employs a multi-tier subcontracting contract system [3], [10]. In this system, the main contractor delegates some of the work to specialist or general subcontractors. These subcontractors may subsequently assign those jobs to second- or third-tier subcontractors. Therefore, this subcontractor chain creates a fragmentation of responsibility regarding workers and safety. The main characteristics of the subcontractor worker are[10](1) Indirect employment relationship: Workers maintain a legal relationship not with the main contractor but with the first- or second-tier subcontractor, (2) Variation in subcontractor capacity : Many small-scale subcontractors have insufficient OSH management systems, (3) Insufficient worker documentation ; The lack of registration for all workers affects the ability to identify the workers and monitor their safety conditions, (4) Disparate OSH supervision; Supervision mostly focuses on work zones handled by the main contractor.

Casual daily workers are a part of the informal workers and are the most vulnerable[18], as they are recruited on a daily need through foremen or head craftsmen, lack written employment agreements, do not receive OSH training prior to starting work, are rarely registered in the Occupational Accident Insurance (JKK) program, and are compensated with daily wages without assurances of continued employment. Due to their informal employment relationship status, the bargaining power of casual daily workers remains weak, often requiring them to perform high-risk work without safety procedures.

3.2 OSH Risks for Subcontractors and Casual Daily Workers

The risks encountered by subcontractors and casual daily workers are considerable and frequently greater than those experienced by formal employees under the direct supervision of the main contractor[10]. The Risk include: (1) **The Risk of Falling from High Places :** Accidents of falling from high places are the primary cause of fatal incidents in the construction industry. Subcontractor workers are usually involved in the installation of scaffolding, formwork, or roofing. The risk increases because of the lack of full-body harness use, the erection of non-standard scaffolding, and limited supervision within subcontractor work zones, (2) **Risk of Being Struck by Materials;** Casual daily workers are frequently assigned the manual movement of materials. Accidents involving being struck by materials are caused by non-standard lifting procedures, the lack of lifting aids, and insufficient communication between workers and crane or forklift operators. (3) **Risks from Heavy Machinery :** Interaction of workers with heavy machinery such as excavators, cranes, and forklifts presents risks including collisions, crushing, or electric shocks (particularly when cranes operate in proximity to power lines). Subcontractor workers often work in large machinery zones without obtaining safety instructions, (4) **Electrical and Welding Risks:** Casual daily workers often work in electrical locations without PPE, such as insulating gloves. Improper cable installation or poor grounding can result in lethal electric shocks, (5) **Risk of Temporary Structural Failure;** The installation of formwork and shoring is frequently carried out by a small subcontractor. The risk of temporary collapse of structures is caused by the use of non-standard reused materials, the lack of technical inspections, and the miscalculation of loads[22].

3.3 Legal Regulations Concerning Occupational Safety in the Construction Industry in Indonesia

National regulations regulate work safety [23], employment[24], social security for workers, and occupational safety and health [25] in construction work [25][26]. The legal provisions governing K3 in the Construction Industry are in the form of Laws (UU), Government Regulations (PP), Regulations of the Minister of Manpower (Permenaker), Regulations of the Minister of Public Works and Public Housing (PUPR), Indonesian National Standards (SNI) which are relevant to K3 construction, Labor Social Security Regulations and K3 Technical Regulations.

A. Law (UU)

1. Law number 1 of 1970 on Occupational Safety stipulates employer responsibilities for providing a safe workplace, obligates them to provide safety equipment and protections for all workers in all workplaces, including construction sites, and establishes the authority of OSH supervisors.
2. Law number 13 of 2003 on Manpower (partially still valid) stipulates company obligations to ensure safety and employer obligations to provide occupational accident social security and safeguards for high-risk work.

3. Law number 2 of 2017 on Construction Services stipulates the obligation of service providers to ensure construction safety, an obligation to develop a Construction Safety Management System (SMKK), and the division of responsibilities between service users and service providers.

B. Government Regulations (PP)

1. PP number 50 of 2012 regarding the Implementation of OSH Management System (SMK3) defines SMK3 standards, requirements for companies with >100 workers or those classified as high risk, and SMK3 audits and certification.
2. PP number 14 of 2021 (Derivative of the Job Creation Law—Housing & PUPR) strengthens laws for construction safety, building operating permits, and technical standards for construction.

C. Regulations of the Minister of Manpower (Permenaker)

1. Permenaker No. 5 of 2018 on OSH in the workplace establishes basic OSH standards, including the management of physical, chemical, and ergonomic hazards and medical examinations for workers.
2. Permenaker No. 26 of 2018 on OSH experts' competencies requires OSH certification for high-risk projects, including construction.
3. Permenaker No. 9 of 2016 on OSH for work at height is particularly important because construction work often requires working at high places.

D. Regulations of the Minister of Public Works and Public Housing (PUPR)

The construction industry is extensively regulated by the Ministry of PUPR

1. PUPR Regulation No. 10 of 2021 on the Construction Safety Management System (SMKK) stipulate the mandatory implementation of SMKK in all construction projects, the Construction Safety Plan (RKK) documentation, construction safety audits, the responsibilities of service users and providers, and construction safety supervision.
2. PUPR Regulation No. 21 of 2019 on guidelines for the Construction Safety Management System (SMKK) defines the technical implementation of SMKK.
3. PUPR Regulation No. 1 of 2021 on Construction Business Entity Certification stipulates OSH competency requirements for specific construction business enterprises.

E. Indonesian National Standards (SNI) which are relevant for construction OSH

Several SNIs are relevant to construction OSH: SNI 2835:2008 –Scaffolding, SNI 1727:2020 –Minimum building loads (to prevent structural failure), SNI for Mechanical and Electrical Work OSH, and SNI Risk Management (ISO 31000:2018)—utilized in SMKK. SNIs are not obligatory but serve as mandatory reference standards in many construction project documents.

F. Worker Social Security Regulations

1. Law Number 24 of 2011 regulates BPJS.
2. The regulations governing BPJS employment include provisions for Occupational Accident Insurance (JKK).

G. Specific Technical OSH Regulations: Electrical Safety (PUIL 2011), Crane Operation Safety, Personal Protective Equipment Safety (SNI 7499—helmets, SNI for footwear, etc.), Welding Safety, Confined Space Safety.

Table 1. Summary of Main Construction OSH Regulations

Level of Regulation	Main Regulation	Focus
Law (UU)	UU 1/1970, UU Construction Services	Legal basis for OSH and construction safety
PP	PP 50/2012 (SMK3)	National OSH management system
Permenaker	OSH at height, working environment	Worker protection
Permen PUPR	Permen 10/2021 (SMKK)	Specific construction safety standards
SNI	Scaffolding, building loads	Technical safety standards

3.3 Legal Gaps in OSH Protection for Subcontractors and Casual Daily Workers

Legal gaps in osh protection for subcontractors and casual daily workers include Lack of explicit obligation for main contractor to supervise subcontractor OSH, Lack of osh supervision, Lack of a project worker registration system, Lack of minimum training standards. First, existing regulations do not yet regulate the main contractor's explicit obligation to supervise the OSH of subcontractors. Regulations require main contractors to implement OSH but do not specify their obligations to second- or third-tier subcontractors. Consequently, small subcontractors operate without sufficient OSH systems, main contractors usually assume that responsibility belongs to the subcontractor, and workers remain unprotected in cases of accidents. Second there is no regulation that explicitly stipulates minimum work contracts for casual daily workers, JKK registration for those working for only a few days, or safety training prior to starting work.

Third, existing regulations do not yet regulate OSH supervision.The number of worker supervisors is limited. In large projects, the main contractor's supervision team often fails to reach the lowest tiers of subcontractors. Fourth lack of a project worker registration system**.** The lack of a worker data system results in identifiable workers, challenges in accident tracing, and weakened legal supervision. Fifth lack of minimum training standards**.** There is no provision for mandatory minimum training, such as one day for all new entry workers. Casual daily workers frequently access project sites without undergoing safety induction.

The legal gap that has been analyzed has an impact on: high number of fatal accidents, difficulty in law enforcement, weak accountability of main contractors, lack of guarantee of workers' basic rights, formation of a low safety culture. These findings show the need for reform of OSH regulations and systems that reach the entire work chain.

Several countries [3], [9] have implemented policies: Supply chain safety management, mandatory OSH training of at least 8 hours, smart card-based worker registration to enter projects, mandatory safety audits for projects above a certain value. Indonesia has not implemented this system comprehensively[22].

3.4 Analysis of Legal Obligation for OSH in the Subcontractor System

In principle, the main contractor is responsible for the entire project. However, due to the lack of explicit regulations concerning subcontractors, responsibility for incidents involving second- or third-tier subcontractor workers is frequently debated. Small subcontractors often lack the financial and administrative capacity to implement OSH systems. Many cases demonstrate that subcontractors fail to register their workers with BPJS of employment and do not have OSH officers. Project employers often reject responsibilities due to a formal employment relationship being established with the main contractor. In several international jurisdictions, project employees possess a comprehensive duty of care for safety.

3.5 Case Studies of Occupational Incidents Involving Subcontractors and Casual Daily Workers

In some multi-story building projects, scaffolding collapse occurred due to installation by uncertified subcontractor workers. Besides that, the equipment failed to meet standards, and the main contractor did not perform the inspections. Such incidents usually result in fatalities among informal workers employed on lower floors. Incidents of workers falling from the 10th floor at a construction site frequently refer to subcontractor workers not wearing full-body harnesses, lack of PPE inspection, and morning safety briefings. Many cases include casual daily workers being struck by materials during manual transfer. The lack of designated worker pathways and insufficient communication between crane operators and workers lead to accidents. Casual daily workers performing wall construction near power lines frequently sustain electrocution because of uninsulated cables and the lack of lockout tagout procedures [27].

IV. CONCLUSION

This research indicates that Occupational Safety and Health (OSH) safeguards for subcontractor and casual day workers in the construction industry remain inadequate. The construction industry's structure, dependent on a multi-tier subcontractor system, creates fragmentation of authority and responsibility. This fragmentation implies ambiguities over responsibility for the safety of workers in the second and third tiers of subcontracting.

Conversely, casual daily workers represent the most vulnerable workers. They work without written contracts, safety training, or adequate worker social security protections. The legal gap in OSH standards leads to a lack of explicit obligations for main contractors to supervise the safety procedures of all layered subcontractors. This creates a gap in responsibility when incidents happen. The legal protections for casual daily workers are unclear, particularly concerning minimum work contracts, registration in the JKK program, and safety training standards. OSH

supervision is ineffective due to the limited number of worker supervisors and the lack of a project worker registration system. The implementation of SMK3 varies significantly between big contractors and small subcontractors. Main contractors possess dedicated OSH units, whereas small subcontractors may lack staff or financial resources for OSH.

This research provides theoretical implications in enriching the literature, especially regarding construction employment and occupational safety, particularly in the context of informal workers and subcontractors. Overall, this research indicates that the OSH protection system in Indonesian construction projects has not reached all workers. Regulatory gaps and implementation inadequacies must be immediately addressed to prevent the reoccurrence of fatal accidents involving subcontractor workers and casual daily workers.

Regulation recommendations can be implemented by the government, main contractors, and other stakeholders to strengthen OSH protection.

1 Regulatory Reform: Strengthening OSH Obligations in the Subcontractor Chain

The government must clearly regulate the obligations for main contractors to: Supervise the OSH implementation across all subcontractors, including those beyond the first tier, Ensure that all subcontractors possess OSH staff or appoint certified OSH personnel, Conduct obligatory periodic safety audits of subcontractors. The regulation is essential to prevent the abdication of responsibility and to ensure that workers across the subcontractor chain receive equal safety protection.

2. Establishment of a Project Worker Registration System

This system would serve as a digital identity card for construction workers (smart ID), aimed to record worker identity, verify completion of basic safety training, monitor JKK membership status, and assist in the identification of accident victims. This obligatory registration has been effectively implemented in developed countries such as Singapore and may reduce the number of people working on projects without basic safety training.

3 . Mandatory Basic Safety Training for all workers

The government must establish minimal training standards, such as an 8-hour basic OSH training for all new workers, including casual daily workers; specialized training for high-risk work, including work at high heights, electrical work, and the operation of heavy machinery; and daily safety induction before work starts. This training is a necessary requirement for entering the project area.

4 . Social Security Protections for Casual Daily Workers

The main contractor must guarantee that all workers, including casual daily workers, have registered in the JKK and JKM programs. The possible mechanisms may include daily registration or a "daily JKK" scheme for workers working for only a few days and the integration of the daily wage payment system with automatic JKK premium payments. This guarantees that casual daily workers stay protected despite working non-permanent jobs.

5 . Strengthening Workers and OSH Supervision

This recommendation includes: Increasing the number of worker supervisors primarily for the construction sector, Enhancing supervisor capacity in OSH audits, Utilizing technology, such as drones and digital monitoring systems, for checking subcontractor work, imposing more stringent administrative and legal penalties for contractors that violate OSH.

6. Enforcement of a Safety Culture Throughout the Entire Subcontractor Chain

Main contractors must establish a safety culture by establishing a zero-accident policy for the entire project, having daily toolbox meetings with all subcontractors, providing recognition for compliant subcontractors, and applying work punishments for violators. Many studies indicate that a strong safety culture can reduce accidents by as much as 40%.

7. Subcontractor Certificate Scheme

The government can develop a subcontractor certification system based on technical competency, OCH capability, accident record, and compliance with social security regulations. Only certified subcontractors should be permitted to work on particular construction projects, especially large ones.

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