ABSTRACT

Purpose: This study aimed to assess the application of occupational safety and health in the construction safety management system and develop a framework for implementing it based on PUPR ministerial regulation Number 10 of 2021, to support infrastructure development in East Java Province.

Method: This study used a qualitative method with a phenomenological approach to gather detailed descriptions of participants' impressions, opinions, and views. It applied Alfred Schutz's approach to establish statements and causal relationships between themes. The research involved six participants and took place at the Department of Public Housing in East Java Province.

Results and conclusion: The results and conclusions of the research unveil (1) 8 groups of themes and meanings shaping the implementation of occupational safety and health within the construction safety management system, rooted in PUPR Ministerial Regulation Number 10 of 2021 to bolster infrastructure development in East Java Province. (2) These findings are consolidated into 8 major propositions, leading to the construction of a comprehensive model for implementing occupational safety and health aligned with PUPR Ministerial Regulation Number 10 of 2021.

Research implications: The findings of this study can help construction companies and policymakers in East Java Province and beyond improve safety measures. Understanding the framework developed here can lead to safer work environments for construction workers. The qualitative methods used in this research also add to the toolbox of qualitative research methods, providing effective ways to capture subjective experiences.

Originality/value: This study offers a unique framework for implementing safety measures in construction projects, specifically designed for the East Java Province and based on relevant regulations. By bringing together various themes from qualitative data, it presents new perspectives on applying regulatory frameworks. Additionally, the use of Alfred Schutz's approach enhances our understanding of how regulations, organizational practices, and individual experiences interact to ensure safety.

Keywords: Occupational Safety And Health, Interpretive Phenomenology, Alfred Schutz's Phenomenology.
RESUMO

Objetivo: Este estudo teve como objetivo avaliar a aplicação da segurança e saúde ocupacional no sistema de gestão de segurança da construção e desenvolver uma estrutura para implementá-lo com base no regulamento ministerial PUPR número 10 de 2021, para apoiar o desenvolvimento da infraestrutura na província de Java Oriental.

Método: Este estudo usou um método qualitativo com uma abordagem fenomenológica para reunir descrições detidahs das impressões, opiniões e pontos de vista dos participantes. Ele aplicou a abordagem de Alfred Schutz para estabelecer declarações e relações causais entre os temas. A pesquisa envolveu seis participantes e foi realizada no Departamento de Habitação Pública da Província de Java Oriental.

Resultados e conclusão: Os resultados e as conclusões da pesquisa revelam (1) 8 grupos de temas e significados que moldam a implementação da segurança e saúde ocupacional no sistema de gestão de segurança da construção, com base no Regulamento Ministerial PUPR nº 10 de 2021 para reforçar o desenvolvimento da infraestrutura na província de Java Oriental. (2) Essas descobertas são consolidadas em 8 proposições principais, levando à construção de um modelo abrangente para a implementação da segurança e saúde ocupacional alinhada com o Regulamento Ministerial PUPR Número 10 de 2021.

Implicações da pesquisa: As descobertas deste estudo podem ajudar as empresas de construção e os formuladores de políticas na província de Java Oriental e em outras regiões a melhorar as medidas de segurança. A compreensão da estrutura desenvolvida aqui pode levar a ambientes de trabalho mais seguros para os trabalhadores da construção civil. Os métodos qualitativos usados nesta pesquisa também contribuem para a caixa de ferramentas dos métodos de pesquisa qualitativa, fornecendo maneiras eficazes de capturar experiências subjetivas.

Originalidade/valor: Este estudo oferece uma estrutura exclusiva para a implementação de medidas de segurança em projetos de construção, projetada especificamente para a província de East Java e baseada em regulamentações relevantes. Ao reunir vários temas de dados qualitativos, ele apresenta novas perspectivas sobre a aplicação de estruturas regulatórias. Além disso, o uso da abordagem de Alfred Schutz aumenta nossa compreensão de como os regulamentos, as práticas organizacionais e as experiências individuais interagem para garantir a segurança.

Palavras-chave: Segurança e Saúde Ocupacional, Fenomenologia Interpretativa, Fenomenologia de Alfred Schutz.

MODELO DE IMPLEMENTACIÓN DE SEGURIDAD Y SALUD OCUPACIONAL EN EL SISTEMA DE GESTIÓN DE SEGURIDAD EN LA CONSTRUCCIÓN BASADO EN EL REGLAMENTO NÚMERO 10 DE 2021 DEL MINISTRO DE PUPR PARA APOYAR EL DESARROLLO DE INFRAESTRUCTURA EN LA PROVINCIA DE JAVA ORIENTAL

RESUMEN

Propósito: Este estudio tuvo como objetivo evaluar la aplicación de la seguridad y salud ocupacional en el sistema de gestión de seguridad de la construcción y desarrollar un marco para implementarlo basado en el reglamento ministerial PUPR Número 10 de 2021, para apoyar el desarrollo de infraestructura en la provincia de Java Oriental.

Método: Este estudio utilizó un método cualitativo con un enfoque fenomenológico para recopilar descripciones detalladas de las impresiones, opiniones y puntos de vista de los participantes. Aplicó el enfoque de Alfred Schutz para establecer enunciados y relaciones causales entre temas. La investigación involucró a seis participantes y se llevó a cabo en el Departamento de Vivienda Pública de la provincia de Java Oriental.

Resultados y conclusión: Los resultados y conclusiones de la investigación revelan (1) 8 grupos de temas y significados que configuran la implementación de la seguridad y salud en el trabajo dentro del sistema de gestión de seguridad en la construcción, arraigados en el Reglamento Ministerial PUPR Número 10 de 2021 para impulsar el desarrollo de infraestructura en Provincia de Java Oriental. (2) Estos hallazgos se consolidan en 8 propuestas principales, que conducen a la construcción de un modelo integral para implementar la seguridad y salud en el trabajo alineado con el Reglamento Ministerial PUPR Número 10 de 2021.

Implicaciones de la investigación: Los hallazgos de este estudio pueden ayudar a las empresas constructoras y a los formuladores de políticas en la provincia de Java Oriental y más allá a mejorar las medidas de seguridad. Comprender el marco desarrollado aquí puede conducir a entornos de trabajo más seguros para los trabajadores de...
la construcción. Los métodos cualitativos utilizados en esta investigación también se suman a la caja de herramientas de los métodos de investigación cualitativa, proporcionando formas efectivas de capturar experiencias subjetivas.

Originalidad/valor: este estudio ofrece un marco único para implementar medidas de seguridad en proyectos de construcción, diseñado específicamente para la provincia de Java Oriental y basado en las regulaciones pertinentes. Al reunir varios temas a partir de datos cualitativos, presenta nuevas perspectivas sobre la aplicación de marcos regulatorios. Además, el uso del enfoque de Alfred Schutz mejora nuestra comprensión de cómo interactúan las regulaciones, las prácticas organizacionales y las experiencias individuales para garantizar la seguridad.

Palabras clave: Seguridad y Salud en el Trabajo, Fenomenología Interpretativa, Fenomenología de Alfred Schutz.

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1 INTRODUCTION

Occupational Safety and Health or commonly referred to as K3 is philosophically defined as a thought about efforts to ensure the integrity and physical and spiritual perfection of labor in particular and humans in general along with their work and culture towards a just and prosperous society (Mulyono, 2016). In terms of juridical aspects, K3 is an effort to protect the safety of labor in carrying out work in the workplace and to protect the safety of everyone who enters the workplace, as well as so that production sources can be used safely and efficiently (Messah et al., 2012). According to the ILO, Occupational Safety and Health is the science of anticipating, recognizing, evaluating, and controlling hazards arising in or from the workplace that may impair the health and welfare of workers, taking into account possible effects on surrounding communities and the general environment (Alli, 2008).

Policies regarding OSH in Indonesia have been regulated through Law Number 1 of 1970 concerning Occupational Safety. However, until now K3 is still an issue that needs attention, considering that work accidents are still rampant. Based on the records of the Employment Social Security Organizing Agency (BPJS) in 2018 there were 114,148 cases of work accidents and in 2019 there were 77,295 cases (Wilana & Zulfiar, 2021). On Monday, January 22, 2018, a work accident occurred on the Jakarta Light Rail Transit (LRT) project. The construction of the LRT project in the Kayu Putih area, East Jakarta collapsed and left five people injured (Setyanti, 2018). On Tuesday, February 20, 2018 a construction failure occurred, namely the collapse of the Becakayu toll pier head formwork in Jakarta. The collapse of the Becakayu toll pier head formwork occurred because the formwork that was being cast could not withstand the load. So that the workers fell and were hit by the material.
This resulted in seven workers being injured by falling materials. On Sunday, February 4, 2018, there was a work accident on the Double Double Track (DDT) construction project in Jatinegara, East Jakarta. The crane used to build the DDT train collapsed and caused four people to die (Agustina, 2018). In 2020, there were 177,00 cases of work accidents (Alfarizy, 2022). This is due to the increasing complexity of the work so that the higher the risk of work accidents.

In East Java on October 29, 2017 on the installation of long span girder >50 m over the overpass girder bridge which is part of the construction project on the Pasuruan-Probolinggo toll road, there was a fall and resulted in 1 death and 3 injuries. This iceberg phenomenon is a theory that conveys that invisible losses arising from work accidents are greater than visible losses. This type of loss is likened to an iceberg. The obvious or calculable loss is only the tip of the iceberg that is visible on the surface of the sea, while the invisible loss or indirect impact in the form of material loss is like the body of a mountain hidden in water, which is bigger than the peak and continues to grow to the bottom of the mountain. Losses arising from accidents are clearly visible or have a clear impact in the form of material loss or human life and other losses that can be calculated with certainty. There are also those that are not clearly visible or felt, and the impact of the accident is felt long after the accident itself. The biggest loss which is an irreplaceable loss is the impact or loss that is not clearly visible but different, because this type of loss is something that cannot be transferred to the insurance company. Such as loss of public trust and defamation due to failures or mistakes that lead to fatal accidents (Bird Jr. et al, 1996).

In its development, Permen PUPR Number 21 of 2019 has become one of the regulatory guidelines used as a basis, not only for construction business services in the PUPR sector, but can also be used for all construction work in general.

With the issuance of the Job Creation Law Number 11 of 2020 which clarifies the responsibility and authority of the central government for the implementation of construction services by implementing Security, Safety, Health and Sustainability (K4) Standards, the substance of the SMKK regulation is contained in Government Regulation Number 14 of 2021 in article 84 - article 84AK. Based on technical regulations in implementing the mandate of PP Number 14 of 2021, since March 31, 2021, Minister of PUPR Regulation Number 10 of 2021 concerning SMKK Guidelines has been issued which revokes Permen Number 21 of 2019.

The regulation of the Governor of East Java as the representative of the Central Government to supervise the implementation of SMKK has not yet used Permen PUPR
Number 10 of 2021 which has been stipulated by the government since March 31, 2021. In carrying out the function of carrying out supervision in Pancasila Industrial Relations in the field of labor, the Governor of East Java Province issued a legal regulation Regional Regulation Number 8 of 2016 concerning the Implementation of Employment (Hutabarat et al., 2022). This regulation regulates aspects of work protection, wages and worker welfare. The types and targets of protection consist of protection of workers with disabilities, protection of child labor, protection of women workers, protection of working time and protection of occupational safety and health. Labor protection is protection that covers aspects of social security, working hours, minimum wages, rights of association and assembly, and protection of labor safety.

The results of special interviews conducted with construction workers, namely skilled workers and construction experts at the East Java Provincial Public Housing, Settlement Areas and Human Settlements Office show that starting in early 2023 work accidents in building construction projects that cause body parts injured are the hands (26.09%) and head (21.74%). The types of work accidents in building construction projects that occur quite a lot are bumped (39.02%), hit (24.39%) and falling from a height (21.95%). The source of work accidents in building construction projects that often cause accidents is handwork tools (36.84%). Dangerous actions in building construction projects are workers neglecting to use protective equipment (36.84%), using unsafe equipment (23.68%). The behavior of construction workers is strongly influenced by the habits of workers who are not familiar with personal protective equipment and the wrong way of lifting weights. As a result of work accidents on construction projects on workers, it can result in death, disability and injury. Based on the results of these interviews, it shows that work accidents mostly result in injuries to workers, and only a few say that work accidents result in disability to workers. This is probably because they cover up work accident reports in order to look clean from fatal accident cases (disability, death).

Although the legal regulation of the Minister of PUPR Regulation Number 21 of 2019 in East Java, in its implementation it turns out that there are still work accidents that cause many injuries and even result in disability to workers. Therefore, it is necessary to change the regulation to PUPR Ministerial Regulation Number 10 of 2021 which is enforced since March 31, 2021.

To enforce the PUPR Regulation Number 10 of 2021, it is necessary to conduct research aimed at obtaining an Occupational Safety and Health Implementation Model in the Construction Safety Management System Based on the PUPR Ministerial Regulation Number 10 of 2021 to Support Infrastructure Development in East Java Province.

Sholihah (2018) model refers to Government Regulation Number 09 of 2008 as a model of the Construction Occupational Safety and Health (OHS) Management System, which consists of OHS Policies (1) Service Provider Company, (2) Planning, (3) Implementation and Operation, (4) Inspection, (5) Management Review. From the results of the analysis, it is concluded that the performance of the implementation of SMK3 is based on the Minister of Public Works Regulation No. 9 of 2008 with a value of 88.295%.

The Sutandi et al (2021) model refers to Government Regulation Number 21 of 2019 as the Construction Safety Management System (CSMS) model. SMKK can still be improved by implementing five strategies, namely: First, establishing a SMKK management organization that will facilitate the flow of division of tasks and responsibilities in implementing construction safety. Second, construction safety goals must be made consistent. Third, service providers analyze training plans for worker competencies. Fourth, service providers must create a program to deal with construction waste. Fifth, service providers ensure that all equipment that requires measurement accuracy is calibrated.

Setiabudi (2022) refers to Government Regulation Number 21 of 2019, namely: (1) The management is committed to creating workplace conditions and a safe and healthy work environment for workers, including in identifying hazards and preventing them at every stage of work, one of which is by preparing JSA and IBPRP. (2) The application and implementation of making JSA and IBPRP is in accordance with the Regulation of the Minister of Public Works and Public Housing Number 21/PRT/M/2019 concerning Guidelines for the Construction Safety Management System and has been validated and declared suitable for trial without revision.

Wahyuono's model (2021) refers to Government Regulation Number 21 of 2019 as the Construction Safety Management System (CSMS) model. From the results of the analysis, it is concluded (1) The government is expected to immediately be able to conduct a real mapping of the field related to the implementation of OHS. (2) It is necessary to emphasize and emphasize that field personnel always use PPE throughout the implementation period at the work site. (3) The government is expected to issue more detailed regulations related to the guidelines for the implementation of OHS at the project site.
Yunanto (2021) model refers to Government Regulation Number 50 of 2012 as the Construction Safety Management System (SMKK) model, which consists of 12 Assessment Elements, namely 1. commitment building and maintenance, 2. documentation strategy, 3. design and contract review, 4. document control, 5. product purchasing and control, 6. safe working based on SMK3, 7. regulatory standards, 8. reporting and improvement, 9. material management and its movement, 10. collection and service users, 11. SMK3 audit, and 12. development of skills and abilities. According to Yunanto, there is still a need for (1) improvement in the implementation of consultation by management with labor, (2) improvement in labor training, especially workers who go directly to the field related to emergencies, (3) community participation in the implementation of SMK3, (4) SMK3 by including elements of Covid-19 is expected to use the latest regulations.

Based on several empirical studies, the Construction Safety Management System (SMK3) model still faces several unresolved issues. One of them is that the performance assessment of the implementation of SMK3 is carried out on the part of the service provider company, but has not been integrated with service users (Sholihah, 2018). In addition, other issues include reducing the main obstacles perceived in each project (Sutandi et al., 2021), further control measures with recommendations for prevention techniques (Setiabudi & Bhaskara, 2022), increasing the implementation of consultations by management with labor, labor training, community participation in the implementation of SMK3, and including elements of Covid-19 using the latest regulations (Yunanto, 2021). In addition, government measures are also needed in issuing more detailed regulations related to implementation guidelines (Wahyuono, 2021) to overcome the existing challenges in the implementation of SMK3 in the construction sector. Therefore, it is necessary to conduct further research to obtain an Occupational Safety and Health Implementation Model in the Construction Safety Management System based on the Minister of PUPR Regulation Number 10 of 2021 to Support Infrastructure Development in East Java Province.

The novelty of this research is to find out the implementation of occupational safety and health in the construction safety management system based on the PUPR ministerial regulation Number 10 of 2021 to support infrastructure development in East Java Province. As well as building a model for the implementation of occupational safety and health in the construction safety management system based on the PUPR ministerial regulation Number 10 of 2021 to support infrastructure development in East Java Province.

The meaning behind various visible phenomena (noumena) is different for each informant. Therefore, an interpretive method of understanding is needed (A Fatchan, 2011).
The interpretative understanding method used is interpretative phenomenological analysis, which produces a detailed description, describing the impressions, opinions and views of the informants studied. Based on the detailed description, it can form an explanatory descriptive, which describes the relationship between categories to build a theory in the form of propositions. The approach method used to build propositions is Alfred Schutz's phenomenological approach (Ach Fatchan, 2013).

Explanatory description propositions with Alfred Schutz's phenomenological approach produce description statements and statements of interrelationships or causality between themes, which can be in the form of interpretative statements (impressions, opinions, and views) or argumentative (explanations, proof, reasons, and objective reviews, including analogies, and cause and effect). So that the final stage of this research is to build a Model of Occupational Safety and Health Implementation in the Construction Safety Management System Based on the Regulation of the Minister of PUPR Number 10 of 2021 to Support Infrastructure Development in East Java Province through phenomenological studies.

Based on the substance of the Minister of PUPR Regulation Number 10 of 2021, the focus of this research is (1) Identifying the contents of the Minister of PUPR Regulation Number 10 of 2021 to support infrastructure development in East Java Province. (2) Understand and explore the meaning as deeply as possible of informants' knowledge about Regulation of the Minister of Public Works and People's Housing (Permen PUPR) Number 10 of 2021, including 1) Content of Permen PUPR Number 10 of 2021, 2) Legal Basis for PUPR Regulation Number 10 of 2021, 3) Scope of Integrated Construction Work, 4) Construction Safety Analysis (AKK), 5) Safety assurance in buildings and construction assets, 6) Details of SMKK documents, 7) Explanation of specialized work, 8) Difference between Minister of PUPR Regulation Number 10 of 2021 and Minister of PUPR Regulation Number 21 of 2019.

2 METHOD

This research method is a qualitative method. The qualitative research approach used is a phenomenological approach, which is useful for understanding and revealing the meaning behind various phenomena that appear (noumena) from detailed descriptions. Understanding is done with the five senses (Ach Fatchan, 2011).

Explanatory description propositions with Alfred Schutz's phenomenological approach produce description statements and statements of interrelationships or causality
between themes, which can be in the form of interpretative statements (impressions, opinions, and views) or argumentative (explanations, proof, reasons, and objective reviews, including analogies, and cause and effect). So that the final stage of this research is to build a model of the Minister of PUPR Regulation Number 10 of 2021 to support special infrastructure development in East Java Province.

This research was conducted in the infrastructure work at the Public Housing, Settlement Areas and Human Settlements Office of East Java Province. The type of data in this study is qualitative data, namely data presented in the form of verbal words not in the form of numbers. Qualitative data includes data from in-depth interviews and the results of documentation activities.

The resource persons were informants from the Directorate of Bina Konstruksi of the Ministry of Public Works and Public Housing (PUPR), PPK of the Physical Activities Building Planning Division, PPK PSPO, and PBL of the Settlement Infrastructure Center, Head of the Technical Team for fiscal infrastructure activities, Planning Consultants, and Implementing Contractors of East Java Province. Supporting documents were obtained from the Office of Public Housing, Settlement Areas, and Human Settlements of East Java Province.

The steps of data collection procedures and techniques as the first step of the research was participant observation, which began with the identification of the Minister of PUPR Regulation Number 10 of 2021 to support special infrastructure development in East Java Province. The right number of informants in determining informants in qualitative studies does not exist. Dukes (1984) suggests 3 to 10 informants, Reimen (1986) suggests 10 informants. Furthermore, if the informants tend to provide repetitive information and no new information is collected, the information gathering is stopped (Creswell, 2015). And data collection through in-depth interviews will explore all issues in the form of open conversational discourse with conditions that are free, relaxed, not pressured, but lead to a dialogue, discussion to find causal relationships between themes or between substances based on the data that has been found, thus the researcher only leads to the topic of conversation and does not control the answers of informants or research subjects.

The interview data was recorded using a recorder. The recordings were documented narratively in the form of Interview Guidelines, resulting in transcript sheets for each informant which were then used as material for analysis.

In addition to collecting data through observation and interviews, researchers also conducted documentation activities, in the form of taking photos related to this research.
through an in-depth search for facts and phenomena from the object of research, so that useful data would be found as material for analysis in this study.

After obtaining data from interviews and documentation, the data analysis stage is carried out as follows:

2.1 DATA VALIDITY CHECK

In this study, data validity checks were carried out by following several procedures (Creswell, 2015) as follows:

a) Triangulation, is a data validity checking technique that utilizes other parties outside the data for the purpose of checking or comparing the data.

b) Research reflexivity, by explaining to others who have an understanding of the reasons for using the theory and research methods.

c) Member checking, is a technique of checking the validity of data by exposing or discussing interim research results or final results through formal or informal discussions.

d) Audit trail, conducted by researchers by consulting the methods used, the results of research data findings and interpretations of research results with the promoter team.

e) Thick and rich description, is a stage where researchers must be able to defend and explain in detail the results of the research.

2.2 THEME AND MEANING IDENTIFICATION ANALYSIS

After checking the validity of the data, the analysis stage of identifying themes and meanings is carried out, which is called the data reduction stage and a detailed description is produced. In phenomenology, this stage is called interpretative phenomenological analysis.

2.3 PROPOSITION FORMATION

The approach method used to build propositions is Alfred Schutz's phenomenological approach. This approach is to understand the actions of individuals (informants) related to various because motives and order to motives. Explanative description with Alfred Schutz's phenomenological approach is the researcher's effort to connect or relate between the findings as follows:
a) Researchers try to explore and find several minor propositions and major propositions that are in accordance with the formulation of the problem, data findings, and based on certain views

b) The propositions found are new propositions that are contextualized in accordance with the conditions behind the actions of individuals (informants) as research subjects

c) The new proposition is a candidate theory that needs to be published widely, so that it becomes a new theory

d) The new proposition or new theory candidate is then compared with existing theories or with existing previous research findings. Thus, researchers must dare to criticize, debate, reconstruct and even determine that their findings are new findings that are different from previous findings.

e) At that time the researcher finds theoretical implications in his research, namely new things from the results of his research, things that are different from previous theories and research findings, and things that are the same or supportive of existing theories or research findings (Fatchan, 2013).

3 RESULTS AND DISCUSSION

The results of the identification of the contents of the Regulation of the Minister of PUPR Number 10 of 2021 to support infrastructure development in East Java Province, based on the understanding of the themes and meanings of the informants, obtained 8 (eight) groups of themes and meanings that underlie the Implementation of Occupational Safety and Health in the Construction Safety Management System Based on the Regulation of the Minister of PUPR Number 10 of 2021 to support infrastructure development in East Java Province, namely 1) The contents of the Regulation of the Minister of PUPR no. 10 of 2021, 2) Legal Basis for PUPR Minister Regulation Number 10 of 2021, 3) Scope of Integrated Construction Work; 4) Construction Safety Analysis (AKK), 5) Safety Assurance in Buildings and Construction Assets, 6) Details of SMKK Documents, 7) Specialized Work, 8) The difference between the Regulation of the Minister of PUPR Number 10 of 2021 and the Regulation of the Minister of PUPR Number 21 of 2019. The themes from the informants' understanding are tabulated as follows:
**Table 1**

**Research findings**

<table>
<thead>
<tr>
<th>No</th>
<th>Theme</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 1. | Contents of PUPR Ministerial Regulation no. 10 of 2021 | 1) Chapter 1. General Provisions (article 1)  
2) Chapter 2. Application of SMKK (article 2 - article 32)  
3) Components of SMKK Implementation Activities (article 33 - article 41)  
4) Chapter 4. Guidance and Supervision (article 42 - article 44)  
5) Chapter 5. Transitional Provisions Article 45  
6) Chapter 6. Closing Provisions (article 46 - article 47)  
7) Appendices (Appendix A - Appendix K) |
| 2. | Legal Basis Permen PUPR Number 10 of 2021 | 1) Law Number 2 of 2017  
2) Government Regulation Number 14 of 2021  
3) Minister of PUPR Regulation Number 13 of 2020  
4) PUPR Regulation Number 16 of 2020 |
| 3. | Integrated Construction Scope of Work | 1) PUPR Regulation No. 10 of 2021 in article 1  
2) Law Number 2 of 2017  
3) Service Providers, Construction Consultants and Integrated Construction Work prepare SMKK Conceptual Design  
4) Service Providers, Construction Consultants and Integrated Construction Work must have a Construction Occupational Safety and Health Expert, or Construction Safety Expert. |
| 4. | Construction Safety Analysis (SCA) | 1) PPA at least includes stages of work, hazards, risks, controls, and responsibilities.  
2) The PPA is signed by K3 / Construction Safety Experts, Service Users, related technical experts, Service Providers  
3) The Service Provider must apply the AKK for work that has a large and/or medium risk level and special work in accordance with the Construction work method contained in the RKK.  
4) AKK is prepared by Construction Occupational Safety and Health Experts, Construction Safety Experts, technical experts related to Construction Safety, and/or Construction Safety Officers.  
5) AKK must be reviewed by Construction Occupational Safety and Health Experts, Construction Safety Experts, and/or experts in charge of Construction Safety in the event of changes in work methods, situations, security, and human resources  
6) In the implementation stage of construction work, the work implementation method plan, AKK and inspection and testing plan are components used as part of the work permit requirements. |
| 5. | Safety Assurance for Buildings and Construction Assets | 1) Infrastructure Operator as a service user who has a construction safety assurance function  
2) Project Organizer as a service user and service provider that performs construction safety assurance and/or control |
| 6. | SMKK Document Breakdown | 5) Appendix D. RKK (Construction Safety Plan)  
6) Appendix E. RMPK (Construction Work Quality Plan)  
7) Appendix F. Quality Program  
8) Appendix G. RKPPPL (Environmental Management and Monitoring Work Plan)  
1) 5) Appendix H. RMLLP (Work Traffic Management Plan) |
| 7. | Specialized Work | 1) The Service Provider must apply AKK for work that has a large and/or medium risk level and special work in accordance with the Construction work method contained in the RKK.  
2) Special work, at least consisting of: hot/sparking work; lifting work; work in confined spaces; diving work; night work; work at heights of more than 1.80 (one point eighty) meters; work using scaffolding; work using radiography; electrical work; and excavation work or depths of more than 1.80 (one point eighty) meters. |
### 3.1 IMPLEMENTATION MODEL OF OCCUPATIONAL SAFETY AND HEALTH IN THE CONSTRUCTION SAFETY MANAGEMENT SYSTEM BASED ON PUPR MINISTERIAL REGULATION NUMBER 10 OF 2021 TO SUPPORT INFRASTRUCTURE DEVELOPMENT IN EAST JAVA PROVINCE

The final stage of this research is to build a model of Occupational Safety and Health Implementation in the Construction Safety Management System Based on the Regulation of the Minister of PUPR Number 10 of 2021 to Support Infrastructure Development in East Java Province, as follows:
Figure 1

Implementation Model of Occupational Safety and Health in the Construction Safety Management System Based on the Regulation of the Minister of PUPR Number 10 of 2021 to Support Infrastructure Development in East Java Province

Source: Proposition Formation Results
3.2 DIFFERENCES BEFORE AND AFTER RESEARCH

The differences before and after the research are as follows:

Table 2

<table>
<thead>
<tr>
<th>No</th>
<th>Before the research</th>
<th>After the research</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Legal Basis of PUPR Regulation Number 21 of 2019 refers, among others, to Law 2/2017 on Construction Services</td>
<td>1. PUPR Regulation Number 10 of 2021, apart from referring to Law 2/2017, also refers to PP 14 of 2021 concerning Amendments to PP 22/2020 concerning Implementation Regulations of Law 2/2017. 2. The legal basis for PUPR organizations has also been updated such as PP 27/2020, Permen PUPR 13/2020, and Permen PUPR 16/2020.</td>
</tr>
<tr>
<td>2.</td>
<td>Integrated Construction Scope of Work does not yet exist</td>
<td>There is a scope of Integrated Construction Work, which is a combination of Construction Work and Construction Consultancy Services.</td>
</tr>
<tr>
<td>3.</td>
<td>Construction Safety Analysis (SCA) does not yet exist</td>
<td>The existence of a Construction Safety Analysis (SCA), which is a method of identifying and controlling hazards based on a series of works in a work method statement.</td>
</tr>
<tr>
<td>4.</td>
<td>Elaboration of safety assurance does not yet exist</td>
<td>Elaboration of safety assurance on buildings and construction sets, equipment and materials, safety objects of the owner or employer, construction labor, suppliers, guests and Sub-Service Providers, communities around the project, exposed communities, work environment, project affected environment, natural environment and built environment.</td>
</tr>
<tr>
<td>5.</td>
<td>Detailed SMKK documents do not yet exist</td>
<td>There is a detailed SMKK document consisting of: SMKK conceptual design, RKK, RMPK, Quality Program, RKPPL, and RMLLP.</td>
</tr>
<tr>
<td>6.</td>
<td>Specific job descriptions do not yet exist</td>
<td>There is a description of special jobs that must be equipped with an AKK, including work at night, work at a height of 1.8 m, work using scaffolding, electrical work and excavation work.</td>
</tr>
<tr>
<td>7.</td>
<td>Conceptual Design of SMKK does not yet exist</td>
<td>The SMKK Conceptual Design is complemented by inspection and testing standards, environmental management plan recommendations, traffic management plans, and Construction Safety risk level determination statements.</td>
</tr>
<tr>
<td>8.</td>
<td>Scope The cost of implementing SMKK does not yet exist</td>
<td>The cost of implementing SMKK is divided into two scopes, namely Cost for Construction Work and Cost for Construction Consultancy Services.</td>
</tr>
<tr>
<td>9.</td>
<td>PUPR Regulation Number 21 of 2019 has 7 attachments</td>
<td>PUPR Regulation Number 10 of 2021 has 11 attachments, there are several additions such as the Quality Program, RKPPL, RM LLP, Risk Implementation Criteria, and Activity Components.</td>
</tr>
</tbody>
</table>

Source: Prepared by authors (2024)

3.3 IMPLICATION OF RESEARCH RESULTS

SMKK as described in article 1 of Permen PUPR No. 10 of 2021 must meet the standards of security, safety, health and sustainability. Construction engineering safety is safety against the fulfillment of several aspects including:

a) The Planning Standard is the fulfillment of all aspects of health, safety, security and
sustainability requirements on planning outcomes; 

b) Design Standard is the fulfillment of the technical guidelines for the process of construction, operation, maintenance, care and dismantling set; 

c) Standard procedures and quality results of the implementation of construction services, namely aspects of construction safety by standardizing the various processes and results of the implementation of construction services contained in written requirements and provisions; 

d) Quality of materials based on SNI (Indonesian National Standard) and foreign standards recognized by the Government and already established in the terms of reference; 

e) The feasibility of equipment is based on technical guidelines on equipment as a basis for fulfilling equipment operating performance according to job designations based on equipment that operates in combination or singly.

Occupational safety and health are the safety and health of the workforce which also needs to include compliance with:

a) Labor rights in the form of labor social protection in terms of the implementation of construction services in accordance with the standards and provisions of government regulations in the legislation;

b) Protection and guarantee of labor safety and health with efforts to prevent accidents and occupational diseases;

c) Prevention of the spread of disease outbreaks in the work environment 

d) Management and prevention of HIV/AIDS; 

e) Prevention of the use of psychotropic substances; 

f) Work environment security

3.3.1 Legal Basis of Construction Safety Management System

Regulations on the Construction Safety Management System are set out in the basics of construction law. The regulations used as a basis are related to work safety:

a. Law No. 1 of 1970 on Occupational Safety

b. Law No. 13 of 2010 on Manpower which contains all labor including occupational safety and health.

d. Minister of Public Works Regulation No. 05/PRT/M2014 concerning guidelines for SMK3 (Occupational Safety and Health Management System) in the construction sector.

e. Law No. 2 of 2017 on Construction Services.


g. PUPR Regulation No.10 of 2021 concerning Guidelines for Construction Safety Management System.

3.3.2 Benefits of Construction Safety Management System

Benefits indicate something that is obtained by a company with work activities, or policies. Benefits are divided into two parts, namely tangible benefits, which represent the real benefits felt by the company, such as the profit obtained by a company from sales, and intangible benefits, which are benefits felt by the company but do not have a direct influence on the company's profits from sales, such as the company's image and improved employee performance. The benefits obtained by a company when implementing SMKK can have an impact on both workers and consumers.

3.3.3 Practical Implications

The SMKK guideline in Permen PUPR Number 10 of 2021 article 1 paragraph (3) explains that SMKK is part of the construction work implementation management system to ensure the realization of construction safety. Service providers must implement SMKK in their projects and workers must also participate in its implementation. In Permen PUPR Number 10 of 2021 there are five elements of SMKK implementation, namely Worker Leadership and Participation in Construction Safety, Construction Safety Planning, Construction Safety Support, Construction Safety Operations, and Evaluation of SMKK Implementation Performance.
3.3.4 Workforce leadership and participation in Construction Safety

It is a policy-making activity to develop a safety culture, which consists of at least subelements:

3.3.4.1 Leadership awareness of external and internal issues carried out by:

a) Identification of internal issues that will be faced during the implementation of Construction Work, at least containing governance and roles in the organizational structure, and work resources
b) Identification of external issues that will be faced during the implementation of Construction Work, at least containing cultural, social, environmental, new knowledge and technology
c) Impacts that affect Construction Safety
d) Categories of issues, types of issues, methods of analyzing strengths, weaknesses, opportunities, and threats, and sources of issues affecting Construction Safety
e) Determining the wishes and expectations of workers and interested parties.

3.3.4.2 Leadership awareness of external and internal issues carried out

The SMKK management organization is carried out by preparing a Service Provider organizational structure that can explain the coordination relationship between the Construction Executor, the Head Office and the SMKK manager, along with the duties and responsibilities.

3.3.4.3 Construction Safety Commitment and workforce participation is done with:

a) Ratification of the commitment pact by the head of the Service Provider
b) Signing of the Construction Safety policy by the head of the Construction Work Implementer
c) Review of the implementation of commitments by preparing a communication schedule for the head of the company or 1 (one) level below the head of the company to make visits to the project in order to ensure the RKK is implemented and increase worker participation
d) Worker consultation and participation establishes a communication matrix of the parties involved in worker communication and participation.

e) Implementation of commitment, socialization, education, consultation and participation are available as documented information.

3.3.4.4 The Head of Service Provider ensures the implementation of supervision, training, accountability, resources and support through the implementation of elements in the RKK.

3.3.5 Construction Safety Planning

It is an activity that consists of at least subelements:

3.3.5.1 IBPRP (Hazard Identification, Risk Assessment, Risk Control Determination, and Opportunity)

a) The IBPRP is prepared by the person in charge of Construction Safety together with technical experts (engineers) and approved by the highest leader of the Construction Work executor in the project.

1) Risk description, including job descriptions, hazard identification, and risks
2) Legislation or requirements
3) Assessment of Construction Safety Risk level
4) Initial risk control is an effort made to eliminate or reduce risks and increase opportunities that have been identified and assessed based on the results of the construction safety risk assessment
5) Residual risk assessment is an assessment of the risks that occur after taking into account the controls that have been established to reduce construction safety risks
6) Further risk control is an additional effort made to eliminate or reduce risks that have been identified and increase opportunities and assessed based on the results of residual risk and opportunity assessments.

b) The description of work is integrated with the schedule and stages of work as in the RMPK document.

c) Hazard identification is prepared based on a multi-risk analysis consisting of worker safety and/or property/assets/materials and/or public safety and/or environmental safety at each stage of work adjusted to the work method.
d) Risk control in the IBPRP must apply an integrated risk control analysis of the results of hazard identification, namely by controlling based on:

1) Engineering aspects (engineering control)
2) Management aspects (administrative control)
3) Aspects of human behavior.
4) Aspects of change and dynamics of construction work (applying change management)

e) Controls are organized based on the following levels of control:
1) Elimination
2) Substitution
3) Technical engineering
4) Administrative control
5) Use of personal protective equipment and occupational protective equipment.

3.3.5.2 Engineering, management, and manpower action plans outlined in goals and load programs:

a) General objectives and programs to achieve the performance of occupational safety, occupational health, work environment security and work environment management.

b) Specific objectives and programs to outline control objectives and programs based on hazard identification, risk and opportunity assessments that have medium and high priority scales.

3.3.5.3 Fulfillment of Construction Safety standards and laws and regulations, carried out by identifying laws and regulations and/or other requirements related to the risk control program

3.3.6 Construction Safety Support

It is a supporting component of Construction Safety that consists of at least subelements:
3.3.6.1 Resources must be defined and provided for the implementation, maintenance and continuous improvement needs of SMKK which at least include:

a) Technology and equipment resources, which include a list of technology and equipment, permits or certificates of fitness of other construction equipment, including equipment operator licenses.
b) Material resources, which informs the list of imported materials and MSDS of hazardous and toxic material (B3) control of the materials
c) SMKK Implementation Cost Calculation which contains at least 9 (nine) components

3.3.6.2 Labor competence is carried out by compiling a list of Construction Safety personnel based on the qualifications of Construction Safety Experts and / or Construction Safety Officers, and the number of members of the UKK is adjusted to the provisions of the level of Construction Safety risk.

a. Organizational awareness, carried out by compiling:
   a) Construction Safety awareness improvement program
   b) Analysis of training needs and socialization of SMKK adjusted to the target table and program
   c) Construction Safety training plan
b. Communication management is carried out by scheduling safety induction, toolbox meetings and other communication schedules according to the needs and scope of the project that takes into account the provisions of laws and regulations.
c. Documented information, namely documents used as a reference in the implementation of construction activities with access control and storage

3.3.7 Construction Safety Operation

Is an activity in controlling Construction Safety, which at least contains subelements:

a. RKK implementation planning is implemented by compiling at least the organizational structure of the work executor including explaining the flow of coordination with the Construction Safety unit, along with its duties and responsibilities.
b. Control of Construction Safety operations includes activities:
a) Construction Safety Analysis (HSA) for work with medium and/or large risk levels,
and special work permits

b) Management of work environment security, namely building reliability management activities integrated with RMPK documents, management of building reliability support and project environmental security, integrated with RMLLP documents, as well as work stoppage procedures if dangerous things are found

c) Work safety management, at least contains:
   1) Procedures for the use of lifting aircraft, transport aircraft, and other construction equipment in accordance with the equipment operation permit and operator's license.
   2) Work safety system procedures and/or work instructions
   3) Procedures and/or work instructions for the use of personal protective equipment
   4) Control of subcontractors and suppliers integrated with the RMPK.

d) Occupational health management, including ownership of labor social protection for the entire construction workforce and worker health checks.

e) Work environment management along with environmental management improvement (reuse, reduce, renewable/recycle) which is then integrated in the RKPPL, at least including:
   1) Pollution prevention procedures or instructions
   2) Housekeeping management related to 5R (Ringkas, Rapih, Resik, Rawat, Rajin)
   3) Garbage and waste management.

f) Readiness and response to emergency conditions are carried out by preparing emergency response procedures in accordance with the nature and classification of the implementation of Construction Work.

g) Investigation of Construction accidents is carried out by preparing procedures for investigating accident incidents, hazardous events, and occupational diseases

3.3.8 Performance evaluation of SMKK implementation

This is an activity to see the benefits of controlling and implementing the implementation of SMKK, which contains the following subelements:

a. Monitoring or inspection is carried out to measure the level of compliance with laws and regulations through the determination of inspection methods, criteria and procedures related to SMKK. Monitoring or inspection is carried out based on a predetermined inspection schedule and outlined in a check sheet.

b. Audit is at least carried out by determining the criteria for implementing the RKK.
c. Evaluation is carried out by determining the method of evaluating compliance and taking action.

d. Management Review is conducted at least by planning and establishing procedures and reports in management review.

e. Construction Safety performance improvement contains corrective actions on the implementation of construction work on multi-year contracts and/or as a follow-up to the results of management review.

4 CONCLUSION

Based on the objectives, data analysis, findings and discussion of the research, it can be concluded that the results of Interpretative Phenomenological Analysis, obtained 8 (eight) groups of themes and meanings underlying the implementation of occupational safety and health in the construction safety management system based on the PUPR ministerial regulation Number 10 of 2021 to support infrastructure development in East Java Province including the contents of PUPR Ministerial Regulation Number 10 of 2021, Legal Basis of PUPR Regulation Number 10 of 2021, Scope of Integrated Construction Work, Construction Safety Analysis (AKK), Safety assurance in buildings and construction assets, Details of SMKK documents, Explanation of special work, Difference between PUPR Ministerial Regulation Number 10 of 2021 and PUPR Ministerial Regulation Number 21 of 2019.

With Alfred Schutz's phenomenological approach, based on these themes and meanings, 8 (eight) major propositions can be formed and a model for implementing occupational safety and health in the construction safety management system based on the PUPR ministerial regulation Number 10 of 2021 to support infrastructure development in East Java Province is built, including the contents of PUPR Ministerial Regulation Number 10 of 2021 consisting of 6 chapters 47 articles and appendix A - appendix K, there are 4 (four) Legal Basis underlying PUPR Regulation Number 10 of 2021, there are 4 (four) Scopes of Integrated Construction Work, there are 6 (six) Construction Safety Analysis (AKK) activities, there are 2 (two) matters of Safety Assurance in Buildings and Construction Assets, there are 5 (five) activities Details of SMKK documents, there are 2 (two) matters of Specialized Work, and there are 9 (nine) differences between PUPR Ministerial Regulation Number 10 of 2021 and PUPR Ministerial Regulation Number 21 of 2019.

To ensure the sustainability of the implementation of the construction safety management system, it can be suggested that the management periodically strives for every
one week period to review the implementation of the overall construction safety management system so that it runs according to its function properly and correctly. The construction service provider seeks to always regularly check the PPE and APK used, so that if it finds signs of damage it can be immediately replaced with a new one. If there is an increase in the number of workers, the construction service provider must ensure that all workers receive safety induction. As well as further similar research, can use the latest legal basis.

REFERENCES


