



(RESEARCH ARTICLE)



## Analysis of occupational health and safety management system internal audit implementation based on SMK3 PP No. 50, 2012 (Study at Pasuruan Concrete Industry, Indonesia)

Milla Wahyu Wulandari <sup>1,\*</sup>, Meirina Ernawati <sup>1</sup>, Bian Shabri Putri Irwanto <sup>1</sup>, Fitri Cahyani Siregar <sup>2</sup> and Bima Agung Lande <sup>3</sup>

<sup>1</sup> Department of Occupational Health and Safety, Faculty of Public Health, Airlangga University, Surabaya, Indonesia.

<sup>2</sup> Department of Environmental Health, Faculty of Public Health, Airlangga University, Surabaya, Indonesia.

<sup>3</sup> Department of Forest Management, Faculty of Forestry, Mulawarman University, Samarinda, Indonesia.

World Journal of Advanced Research and Reviews, 2024, 21(01), 2131–2138

Publication history: Received on 10 December 2023; revised on 20 January 2024; accepted on 22 January 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.21.1.0244>

### Abstract

Technological updates impact the risk of new hazards that can cause accidents and occupational diseases. The risk of hazards in the workplace is controlled through control efforts and the commitment of industries and workers to implementing the Occupational Health and Safety Management System. Indonesian manufacturing industries in implementing Occupational Health and Safety Management System are guided by SMK3 PP No. 50, 2012. Internal audit includes the fourth principle of occupational health and safety management system, namely monitoring and evaluating Occupational Health and Safety (OHS) performance. This research is descriptive research that aims to describe and analyze the application of occupational health and safety management system based on SMK3 PP No. 50, 2012 at Pasuruan Concrete Industry, Indonesia. Information sources are obtained from in-depth interviews, filling out document study checklist sheets, and field observations. The method to obtain in-depth interview informants through purposive sampling, with research informants is the party who has the authority and knowledge regarding the implementation of Occupational Health and Safety Management System in the Pasuruan Concrete Industry, Indonesia. Of the total 166 elements required by SMK3 PP No. 50, 2012, the company managed to fulfill as many as 160 elements, or 96%, with the category 'Satisfactory'. Overall, the company implements occupational health and safety management system progressively and sustainably, as evidenced by the increase in achieving the conformity of occupational health and safety management system audit internal elements and the guarantee of worker safety and health starting from management support, OHS programs, and the availability of adequate facilities and infrastructure.

**Keywords:** Occupational Health; Occupational Safety; Internal Audit; Occupational Health and Safety Management System; Zero Accident

### 1. Introduction

Occupational Safety and Health (OHS) is a significant effort to be applied in companies to maintain labor conditions that are safe and secure while working, especially in companies that have high productivity and high accident risks, namely concrete production companies (1). Every company is required to implement OHS, regulated on UU RI No. 1, 1970 concerning Work Safety, explaining that every worker has the right to protection for their safety in doing work for the welfare of life and increasing national production and productivity. Another regulation issued by the government to regulate the implementation of OHS is regulated on UU RI No. 13, 2003 Article 87 concerning Manpower, which explains that every company implementing Occupational Health and Safety Management System as part of company management will be sanctioned if they do not implement it. However, work accidents still occur because the

\* Corresponding author: Milla Wahyu Wulandari

implementation of Occupational Health and Safety Management System in companies could be better and more aware of the risk of work accidents (2).

Work accidents are unwanted and unexpected events that can cause loss of life, material, property, and working time (3). Data from the International Labour Organization in the 2022 occupational safety and health profile report by the Ministry of Manpower of the Republic of Indonesia estimates that around 430 million per year consisting of 270 million (62.8%) experience work accidents and 160 million (37.2%) experience occupational diseases and 2.78 million cause worker deaths each year (4). A country's economic losses from work accidents in 2017 reached 3.94%-4% of Gross Domestic Product (GDP) (5). Generally, 85% of workplace accidents are caused by unsafe human acts and human errors. Therefore, companies are expected to implement OHS well through risk control to protect workers in the workplace (6).

Data from PT Sucofindo states that there are more than 1,850 companies in Indonesia with various types of industrial sectors, namely the government, mining, manufacturing, and other sectors (7). Based on PT Sucofindo's Occupational Health and Safety Management System audit data results in 2017, 455 companies received awards for their commitment to implementing OHS. This result has increased from 2016 to only 347 companies, but this number needs to be revised, only representing 24% of the number of companies in Indonesia (8). Based on these data, it can be seen that many companies in the field still need to implement OHS in the function of the industry's management system.

Occupational Health and Safety Management System can be interpreted as part of the overall management system, which includes organizational structure, planning, responsibility, implementation, procedures, processes, and resources needed for the development, implementation, achievement, assessment, and maintenance of occupational safety and health policies in the context of controlling risks related to work activities in order to create a safe workplace, efficient and productive (9). The application of Occupational Health and Safety Management System in Indonesia is mandatory or mandatory for companies that employ as many as 100 workers, and its application is regulated on SMK3 PP No. 50, 2012 (10). However, based on field data, there are still companies that have not implemented SMK3 PP No. 50, 2012 with findings of deliberately not reporting work accidents, not forming P2K3, and the management does not support the implementation of Occupational Health and Safety Management System (11).

Pasuruan Concrete Industry is one of the manufacturing industries of State-Owned Enterprises (BUMN) that produces concrete types of electricity poles, poles, rail sleepers, etc. In the production process, it has used a semi-automatic machine so that the risk of work accidents is relatively high. The efforts made by the company to minimize work accidents are the implementation of Occupational Health and Safety Management System. In addition, the Pasuruan Concrete Industry, Indonesia has been committed to maintaining quality and performance by striving for the best possible application of Occupational Health and Safety Management System. The positive impact of the progressive and sustainable implementation of Occupational Health and Safety Management System at Pasuruan Concrete Industry, Indonesia is the decline in work accident cases in 2019, where in 2018 there were 60 cases down to 30 cases in 2019 (12).

Based on the results of interviews with HSE officers, in 2019-2022 the industry received the Occupational Health and Safety Management System internal audit assessment category in the satisfactory category. However, there were still work accidents caused by human error and a decrease in the conformity value of the Occupational Health and Safety Management System internal audit in 2022, which received a conformity value of 92%, while in the previous year, 2021, it received a fulfillment value of 94%. Therefore, it is considered essential to conduct an analysis related to the implementation of the Occupational Health and Safety Management System internal audit based on SMK3 PP No. 50, 2012 to increase zero accidents at Pasuruan Concrete Industry, Indonesia.

---

## 2. Material and methods

This research uses qualitative methods with a descriptive approach, namely research that aims to describe the application of Occupational Health and Safety Management System based on SMK3 PP No. 50, 2012 at Pasuruan Concrete Industry, Indonesia. Descriptive research can be used as an assessment of the condition and implementation of improvements to a program (13). Sources of information in this study were obtained from in-depth interviews, filling out document study checklist sheets, and field observations.

This research is guided by SMK3 PP No. 50, 2012 concerning the Implementation of Occupational Safety and Health Management System which consists of 5 principles and 12 elements (10). Each element will be assessed for suitability and the assessment results are categorized as follows: (1) 0-59% Less category standard, (2) 60-84% Good category standard, and (3) 85-100% Satisfactory category standard.

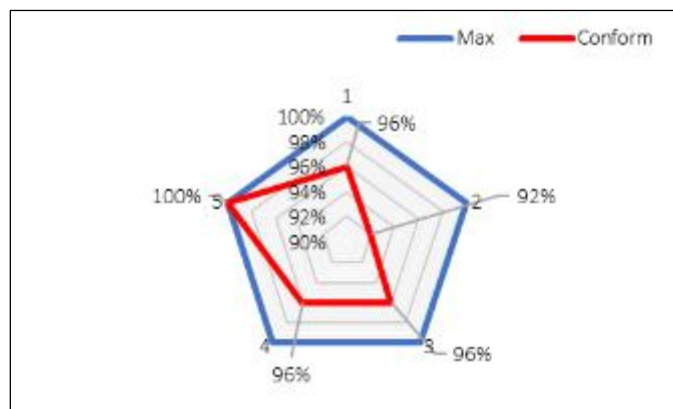
The data obtained were then analyzed by comparing the application of Occupational Health and Safety Management System in the Pasuruan Concrete Industry, Indonesia based on SMK3 PP No. 50, 2012, as well as other technical requirements and references used related to this study. This research has passed the selection related to data privacy to be published by Pasuruan Concrete Industry, Indonesia by applying for a research permit. Ethical clearance was not proposed by the authors because the study only evaluated the application of Occupational Health and Safety Management System in the industry and did not provide biological test interventions and did not collect health data on human research subjects.

### 3. Result

The study results were obtained from 2 respondents on in-depth interviews using the document study checklist sheet instrument with the Occupational Safety and Health Advisory Committee (P2K3) and field observations conducted to prove the suitability of the information provided with field conditions. Respondents provided information that Pasuruan Concrete Industry, Indonesia has committed to implementing Occupational Health and Safety Management System, which is currently at an advanced level; the industry must meet 166 criteria and 5 principles of Occupational Health and Safety Management System, listed in PP No. 50, 2012.

**Table 1** Results of Analysis of Occupational Health and Safety Management System Principles Guided by SMK3 PP No. 50, 2012 in 2023

| No    | Principle  | Result  |            |      |
|-------|--|---------|------------|------|
|       |  | Maximum | Conformity | %    |
| 1.    | OHS Policy Establishment   | 26      | 25         | 96%  |
| 2.    | OHS Planning   | 14      | 13         | 92%  |
| 3.    | Implementation of OHS Plan   | 77      | 74         | 96%  |
| 4.    | Monitoring and Evaluation of OHS Performance   | 26      | 25         | 96%  |
| 5.    | Review and Improvement of Occupational Health and Safety Management System Performance | 23      | 23         | 100% |
| Total |  | 166     | 160        | 96%  |



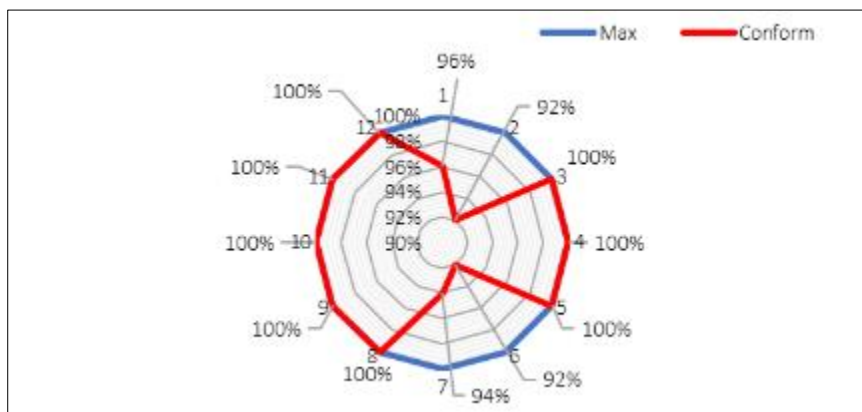
**Figure 1** Radar Chart Based on Occupational Health and Safety Management System Principles

Guided by SMK3 PP No. 50, 2012 in 2023

Based on Table 1, it can be seen that some principles still have not achieved maximum conform, namely the first principle on policy determination, the second principle on OHS planning, the third principle on the implementation of the K3 plan, and the fourth principle on monitoring and evaluating OHS performance. The company needs to improve K3 performance and immediately take corrective action based on the audit findings. Figure 1 is a graph map how far the industry needs to conform the Occupational Health and Safety Management System principles.

**Table 2** Results of Conformity Analysis Based on of Occupational Health and Safety Management System Audit Internal Element Guided by SMK3 PP No. 50, 2012

| No    | Element   | Result  |            |      |
|-------|---|---------|------------|------|
|       |   | Maximum | Conformity | %    |
| 1.    | Development and Maintenance of Commitment                               | 26      | 25         | 96%  |
| 2.    | Preparation and Documentation of K3 Plan                                | 14      | 13         | 92%  |
| 3.    | Skill Development and Ability   | 8       | 8          | 100% |
| 4.    | Document Control  | 7       | 7          | 100% |
| 5.    | Purchasing and Product Control  | 9       | 9          | 100% |
| 6.    | Security Work Based on Occupational Health and Safety Management System | 41      | 38         | 92%  |
| 7.    | Monitoring Standard   | 12      | 12         | 94%  |
| 8.    | Reporting and Correcting Deficiency                                     | 17      | 16         | 100% |
| 9.    | Material Management and Its Movement                                    | 6       | 6          | 100% |
| 10.   | Collection and Use of Data  | 3       | 3          | 100% |
| 11.   | Occupational Health and Safety Management System Audit                  | 9       | 9          | 100% |
| 12.   | Skill Development and Ability   | 14      | 14         | 100% |
| Total |   | 166     | 160        | 96%  |

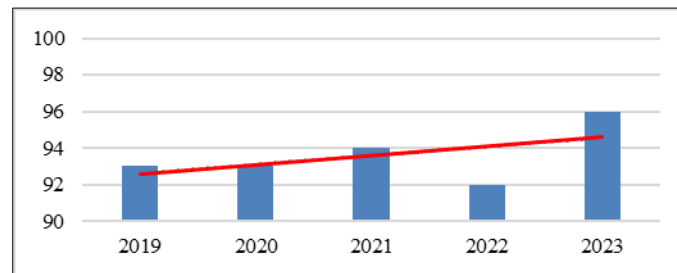


**Figure 2** Radar Chart Based on Occupational Health and Safety Management System Audit Internal Element

Guided by SMK3 PP No. 50, 2012

Table 2 is the result of an analysis based on the internal audit elements of Occupational Health and Safety Management System at Pasuruan Concrete Industry, Indonesia. Based on the table, some elements still need maximum conformity, namely 6 minor category findings, including the first, second, sixth, and seventh elements. The first element assesses the development and maintenance of commitments, where the industry needs to conform to element 1.1.3, which is not appropriate regarding the industry communicating the OHS policy to all workers, guests, contractors, customers, and suppliers in an appropriate manner. The second element assesses the making and documenting of K3 plans, which the industry does not conform to element 2.1.6 related to OHS plans aligned with the company's management system plans. The sixth element assesses work security based on Occupational Health and Safety Management System, which the industry does not comply with element 6.2.1 related to supervision to ensure that every work is carried out safely and follows predetermined work procedures and instructions; element 6.7.2 Relating to the provision of emergency tools or facilities and procedures based on the results of identification and regularly tested and reviewed by competent and authorized officers; and element 6.7.4 about emergency personnel is established and given special training and informed to all persons in the workplace. The seventh element assesses monitoring standards, which the industry does

not conform to element 7.2.1 regarding monitoring or measurement of the work environment. It is carried out regularly, and the results are documented, maintained, and used for risk assessment and control. The company must improve OHS performance and immediately take corrective action based on the audit findings. Figure 2 is a graph to map how far the industry does not conform to the elemental need to be Occupational Health and Safety Management System's internal audit.



**Figure 3** Graph of the Results of the Occupational Health and Safety Management System Implementation Conformity for 2019-2023 at Pasuruan Concrete Industry, Indonesia

Based on Figure 3, it can be seen that Pasuruan Concrete Industry, Indonesia has increased the conformity of Occupational Health and Safety Management System internal audit elements. However, what is noted is a significant decrease in fulfillment in 2022, with the value of fulfilling the internal audit element of Occupational Health and Safety Management System by 92%. This needs to be used as an evaluation to improve the performance and implementation of Occupational Health and Safety Management System at industry. With firm commitment and effort, the industry can meet the lag in 2022, as evidenced by the achievement of a percentage Occupational Health and Safety Management System internal audit fulfillment rate in 2023 of 96%. The assessment is by the Occupational Health and Safety Management System audit elements in Appendix II SMK3 PP No. 50, 2012 for advanced-level achievement—furthermore, Pasuruan Concrete Industry, Indonesia is recommended to get the achievement of the 'Satisfactory' category. Overall, the company implements Occupational Health and Safety Management System progressively and sustainably, as evidenced by the increase in achieving the fulfillment of Occupational Health and Safety Management System audit elements and the guarantee of worker safety and health starting from management support, OHS programs, and the availability of adequate facilities and infrastructure.

## 4. Discussion

Pasuruan Concrete Industry, Indonesia has implemented Occupational Health and Safety Management System guided by SMK3 PP No. 50, 2012. The industry in general has applied Occupational Health and Safety Management System to every function in the industry both in the office and in all work areas under industrial control. The implementation of Occupational Health and Safety Management System internal audit is guided by the standard clause of SMK3 PP No. 50, 2012 with the Plan, Do, Check, Action (PDCA) approach (OHS planning, OHS implementation, measurement and evaluation, and review and improvement of Occupational Health and Safety Management System by management). The application and results of the detailed explanation of the Occupational Health and Safety Management System internal audit in the Pasuruan Concrete Industry, Indonesia are as follows:

### 4.1. First Principle: OHS Policy Establishment

Pasuruan Concrete Industry, Indonesia has set a policy. The content of the policy is in accordance with the objectives of implementing Occupational Health and Safety Management System. The policy is signed by the President Director. These policies include: (1) Safety, Occupational Health, and Environment Policy, (2) Specific policies: Alcoholic Beverages and Illegal Drugs, HIV/AIDS Prevention and Control Policy, Tuberculosis Prevention and Control Policy, (3) Stop Walking Authority Policy.

### 4.2. Second Principle: OHS Planning

OHS planning that has been applied by Pasuruan Concrete Industry, Indonesia in this principle includes (1) Hazard Identification, Risk Assessment, and Control, (2) Identification of Laws and Regulations, and Other Requirements, (3) Targets and Programs. Each activity has identified hazards and has a risk value at an acceptable low level. In addition, the industry has identified and evaluated laws and regulations periodically once a year. This industry has K3-oriented

goals and programs with the head office stipulated such as Risk Communicable Audit, SHE Level score 820, housekeeping score 881, severe accident = 0.

#### 4.3. Third Principle: Implementation of OHS Plan

The implementation of the OHS plan must be carried out by the company with (1) Provision of Resources, (2) Provision of Adequate Facilities and Infrastructure, (3) Work Instructions. In providing resources, the industry has provided personnel according to the competence and education as well as the health level of prospective employees to work. In addition, Pasuruan Concrete Industry, Indonesia provides consulting, motivation, and awareness services through internal communication including SHE Talk, Tool Box Meeting, SHE Meeting, Safety Induction, poster banner, wall magazine, email, leaflet and external communication through providing information needed by interested parties. In addition, the industry has provided adequate facilities and infrastructure including clinics, canteens, wastewater management installations. Pasuruan Concrete Industry, Indonesia has work instructions to carry out work according to predetermined K3 requirements.

Based on the results of field observations, Pasuruan Concrete Industry, Indonesia has implemented risk control efforts as follows:

- Elimination
- Elimination is an effort to control risk by eliminating sources of danger. This effort cannot be carried out because workplace hazards originate from the environment and operational processes are under human control.
- Substitution
- Substitution is an effort to control risk by replacing the source of danger with other tools or ways to minimize the risk caused. This effort cannot be done to replace the machine and hazards commonly used because it can affect the quality of the products produced. Potential hazards originate from the environment and operational production processes under human control.
- Engineering Control
- Engineering control is an effort to control risk by modifying or designing safer tools/machines/workplaces. The company has made this effort by installing safety devices and hazard markers, sirens as a danger sign that it is prohibited from approaching the stressing process, the use of lifting equipment, automatic concrete frame assembly machines (ware caging), and others.
- Administrative
- Administrative is a way to minimize risk by making procedures, rules, training, danger signs, signs, posters, labels, or changing the duration of work. The company has made this effort by certifying operators and tools, checking equipment regularly, there are work instructions and procedures, installing OHS signs, health checks, and organizing working hours that are in accordance with the law.
- Personal Protective Equipment
- PPE intended in this effort is to provide protection to workers with PPE to minimize exposure to hazards and risks. The company has provided PPE free of charge and has been well managed. PPE available at the company includes safety helmets, safety shoes, goggles, face shields, aprons, gloves, leather gloves, earplugs, masks, and respirators.

There are several notes and results that need to be considered when field observations as follows:

1. There are several worker activities that enter the substandard action such as (1) operators do not pay attention to SOP when working, (2) workers need to pay attention to proper manual handling, and (3) workers' awareness about housekeeping is still lacking.
2. There are several notes related to substandard conditions that need to be considered by the company, namely (1) the Batching Plant Area is prone to falling and hitting iron, (2) it is necessary to measure personal dust exposure in the Batching Plant area, (3) the lighting in the Stockyard Area still does not meet the standards at night so immediate corrective action needs to be taken.
3. The company has implemented rewards based on the best housekeeping implementation and workers with the best OHS care at mass briefings as appreciation. However, companies need to pay attention to giving punishment to workers who violate OHS and have low concern for OHS, so that commitment to OHS remains optimal.

#### 4.4. Fourth Principle: Monitoring and Evaluation

OHS performance monitoring and evaluation carried out in the company includes: (1) OHS Inspection, (2) Work Environment Measurement and Monitoring, (3) Medical Check Up, (4) Nonconformity Handling and Corrective Actions,

(5) Occupational Health and Safety Management System Audit. The Company conducts internal audits once a year in one of the quarters I, II, III, and IV and external audits every three years. Internal auditors are representatives of the head office, while external auditor personnel are PJK3.

#### **4.5. Fifth Principle: Monitoring and Performance Improvement of Occupational Health and Safety Management System**

The company has conducted a review of Occupational Health and Safety Management System as a whole according to Occupational Health and Safety Management System requirements.

---

### **5. Conclusion**

- Pasuruan Concrete Industry, Indonesia has conducted regular and continuous internal audits of Occupational Health and Safety Management System every 1 year between quarters I, II, III, and IV with auditor representatives from the head office as a preparation effort before conducting Occupational Health and Safety Management System external audits which are carried out every 3 years.
- The results of the Occupational Health and Safety Management System internal audit in 2023 Pasuruan Concrete Industry, Indonesia have met 96% or have met 160 of the 166 Occupational Health and Safety Management System audit criteria in appendix 2 of SMK3 PP No. 50, 2012 for advanced level achievement. Furthermore, Pasuruan Concrete Industry, Indonesia is recommended to get the achievement of the 'Satisfactory' category.
- The findings of the internal audit of Occupational Health and Safety Management System Pasuruan Concrete Industry, Indonesia based on the elements guided by SMK3 PP No. 50, 2012 include the first element concerning the development and maintenance of commitments, the second element concerning the preparation and documentation of OHS plans, the sixth element concerning work security based on Occupational Health and Safety Management System, and the seventh element concerning monitoring standards.

---

### **Compliance with ethical standards**

#### *Acknowledgements*

This article not receive assistance from the government, private companies, or non-profit organization

---

### **References**

- [1] Kurnia MB. Factors Causing Low Implementation of Occupational Health and Safety Management System (SMK3) pada Perusahaan Bidang Pekerjaan Konstruksi. *J Student Tek Sipil*. 2020;2(2):141–6.
- [2] Anita OI. P Government Supervision of the Implementation of the Occupational Health and Safety Management System (SMK3) of Temanggung Regency. *Adinegara* [Internet]. 2016;3(1):1–14. Available from: <https://journal.student.uny.ac.id/index.php/adinegara/article/view/3938><https://journal.student.uny.ac.id/index.php/adinegara/article/download/3938/3598>
- [3] Dahlan M. Analysis of The Causes of Work Accidents Based on The Results of Work Accident Investigations at PT. PAL Indonesia. *J Kesehat Masy* [Internet]. 2017;3(1):1. Available from: <https://media.neliti.com/media/publications/283663-analisis-penyebab-kecelakaan-kerja-berda-e83bc46a.pdf>
- [4] Adiratna Y, Astono S, Fertiaz M, Subhan. Indonesia's National Occupational Safety and Health Profile 2022 [Internet]. 2022. Available from: [https://satudata.kemnaker.go.id/satudata-public/2022/10/files/publikasi/1675652225177\\_Profil%2520K3%2520Nasional%25202022.pdf](https://satudata.kemnaker.go.id/satudata-public/2022/10/files/publikasi/1675652225177_Profil%2520K3%2520Nasional%25202022.pdf)
- [5] Hämäläinen P, Takala J, Kiat TB. Global Estimates Of Occupational Accidents And Work-Related Illnesses [Internet]. 2017. Available from: <https://www.icohweb.org/>
- [6] Herlinawati H, Zulfikar AS. Analysis of the Implementation of the Occupational Health and Safety Management System (SMK3). *J Kesehatan*. 2020;8(1):895–906.
- [7] Setyowati DL. The relationship of knowledge, attitudes, training, supervision with perceptions of the application of SMK3. *Faletehan Heal J*. 2018;5(1):19–24.

- [8] PT Sucofindo. Sucofindo Audit 455 Companies Winning SMK3 Certificate [Internet]. 2017 [cited 2024 Jan 7]. Available from: <https://pressrelease.kontan.co.id/release/sucofindo-audit-455-perusahaan-peraih-sertifikat-smk3?page=all>
- [9] Setyoko. Occupational Health and Safety Management System (SMK3)pada Perusahaan. *Orbith*. 2017;13(3):172–7.
- [10] Pemerintah Republik Indonesia. Occupational Health and Safety Management System. Indonesia; 2012.
- [11] Fitriana L, Wahyuningsih AS. Implementation of Occupational Health and Safety Management System (SMK3) at PT. Ahmadaris. *Higeia J Public Heal Res Dev* [Internet]. 2017;1(1):1–12. Available from: <http://journal.unnes.ac.id/sju/index.php/higeia>
- [12] Kuncoro A. Analysis of Factors Affecting Work Accidents (Three Main Factor Approach) in Pasuruan Concrete Production Workers. Universitas Airlangga; 2021.
- [13] Harahap. Qualitative Research. Medan: Wal Ashri publising; 2020.