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Implementation of Occupational Safety and Health Management System to Prevent Occupational Accidents in the Food Industry

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ABSTRACT

It is essential for companies operating in the industrial sector to implement an occupational safety and health management system (OSHMS). There needs to be control and prevention efforts so that work accidents can be minimized. The success of PT. X in implementing OSHMS as an effort to prevent work accidents. The efforts made by PT. X in overcoming work accidents. Quantitative descriptive research using a purposive sampling method, the sample was selected by 4 people who have in-depth knowledge and competence related to OSH in the company. Data was obtained and analyzed using Risk Management, which refers to the checklist in the PP attachment—50 of 2012. Data analysis is displayed in the form of a percentage number. The research results concluded that the implementation of the occupational safety and health management system in the food industry was achieved with an average score of 80.30 percent in the excellent category. Efforts made to overcome work accidents include implementing coaching in the form of emergency simulation training and SMK3 education, as well as hazard identification. It is recommended that there be ongoing training to improve the implementation of OSHMS in companies.

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1. INTRODUCTION

The food industry plays a vital role in achieving the growth targets of the national manufacturing industry. This industry includes small, medium, and large-scale industries, which are characterized by the development of types of industries that process raw materials originating from the agricultural sector. In general, the food industry is an industry that processes agricultural products into products that are ready to eat and have added value according to consumer demand and tastes. Factors that influence consumer tastes relate to the attractive composition, color, taste, and texture. Apart from that, to produce food that suits consumer tastes, organoleptic testing is needed to increase the success of product quality assurance through good management and maintenance of human resources (HR).

The existence of human resources in a company is quite an essential asset. Hence, it is necessary to pay attention to security and safety as a form of control and prevention of danger both in the company and in other institutions because the impact of accidents is not only detrimental to employees but also has an impact on the company either directly or indirectly. Work accidents occur in companies, from light to severe, which require occupational safety and health. Occupational Safety and Health (OSH) is an instrument to protect workers, companies, the environment, and the surrounding community from dangers resulting from work accidents (Marlina, 2016; Susanto et al., 2021; Juarsa et al., 2023; Mustofa et al., 2023).

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Occupational safety and health management is everything planned by leaders or managers to improve the welfare of workers to obtain all guarantees within the company that there are human elements, materials, and equipment and a management system that is met to prevent work accidents. OSH is our effort to create a healthy and safe work environment so that it can reduce the probability of work accidents/illnesses due to negligence, which results in demotivation and work productivity deficiencies (Setyarso, 2020; Irianto et al., 2022; Lazuardi et al., 2022; Wildan et al., 2022).

Based on Law no. 1 of 1970 concerning Work Safety, the implementation of OSH aims to Protect and guarantee the safety of every worker and other people in the workplace; Ensure that every production source can be used safely and efficiently; and increase national welfare and productivity. Companies operating in the industrial sector must implement an Occupational Safety and Health Management System (OSHMS) that is by government regulatory guidelines no. 50 of 2012 requires the implementation of OSHMS through several indicators for handling potential hazards, including workforce, work equipment, and work environment.

It is hoped that occupational safety and health management that is implemented as well as possible will provide a climate of work safety and calm that will be very helpful in increasing workforce productivity (Pankey, 2012; Baka et al., 2022; Sukwika & Riwayando, 2022; Mudzakir et al., 2023).

In this food industry company, several cases were recorded in 2018-2022 regarding work accidents that were detrimental to employees and the company; some of the cases included hands or feet being caught in machine conveyors, hands being caught in seal machines, and bodies being hit by bursts of fire. Accidents that occur can result in physical disabilities, both minor injuries and even death, which people in the workplace can feel. In general, accidents that are likely to occur frequently in the workplace include explosions or fires (Atikah, 2013; Yuvendra et al., 2022; Mudzakir et al., 2023; Purwanti et al., 2023; Sukwika & Zabhara, 2023).

Based on the description of the problems above, there is a need for control and prevention efforts so that work accidents can be minimized by implementing OSHMS. This research aims to determine the success of PT. X in implementing OSHMS and efforts to overcome work accidents.

2. RESEARCH METHOD

This research uses a quantitative descriptive type located in one of the food industries in the Bekasi Regency area, West Java. Data collection was carried out using a purposive sampling method using the interview and questionnaire stages, where there were primary informants and triangulation informants with a sample taken of 4 people who already had competence in the company's OSH field. The indicators analyzed are OSH Policy, OSH Planning, OSH Implementation, OSH Performance Evaluation, and OSHMS Performance Review, which refers to Indonesian Government Regulation Number 50 of 2012. Furthermore, the data obtained will be analyzed using the following formula (Sugiyono, 2012; Sukwika, 2023):

$$P = \frac{ST}{SM} \times 100\%$$

Information:
P = Score percentage number
ST = Total score generated
SM = Maximum score that should be obtained

Then, the percentage figures are classified using the following formula.

a. Determining the Highest Score and Lowest Score.

$$\text{Highest Score} = \frac{Weight\ of\ greatest\ value}{Weight\ of\ greatest\ value}\ x\ 100\%$$

$$\text{Lowest Score} = \frac{Lowest\ score\ weight}{Weight\ of\ greatest\ value}\ x\ 100\%$$

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Information:
Largest value weight = 4
Lowest value weight = 1

Determining Range

Score Range Score = highest score – lowest score

Information:
Highest score = 100%
Lowest score = 0%

b. Determining Value Intervals

$$\text{Value Interval} = \frac{score\ range}{many\ classifications} \text{ x } 100\%$$

Information:
Score range = 100%
Many classifications = 4

The results obtained are categorized based on percentage value intervals as follows:

Table 1. Percentage Value Intervals

Interval Skor (%)	Kategori
76 - 100	Baik
51 - 75	Cukup
26 - 50	Kurang
0 - 25	Tidak Baik

3. RESULTS AND DISCUSSIONS

Implementation of an Occupational Safety and Health Management System. The data obtained is classified into 5 indicators, namely, policy, planning, implementation, evolution, and K3 review. The following is a summary of the description of the achievements of each sub-indicator of K3 implementation at PT. X.

K3 Policy. The K3 policy at PT. X is as follows:

1. Leadership
   Leadership aims to determine the extent of commitment to occupational safety and health with existing resources. Based on Table 2, it is known that the identification of K3 leadership has been carried out with a score of 87.5 percent. Leadership aims to determine the extent of commitment to occupational safety and health with existing resources. Meanwhile, research conducted by Simanjuntak (2019), Susanto et al. 92021), and Sukwika & Riwayando (2022) stated that every level of Leadership in the company must show commitment to K3 so that the implementation of the K3 Management System is successfully implemented and developed. Every worker and other people in the workplace must participate in maintaining and controlling the implementation of K3.

2. Policy
   Based on Table 2, it is known that the K3 policy has been implemented with a score of 87.5%. It is in line with Prasetya's (2015) research, and Mustofa et al. (2023) stated that the K3 policy has been well documented and maintained and is reviewed regularly every year to adjust to changes that occur in the company and statutory regulations. Implementing K3 policies can encourage zero acidity in the workplace (Irianto et al., 2022; Lazuardi et al., 2022). The K3 aspects that influence the achievement of zero accidents are policy aspects, planning aspects, operational and implementation aspects, inspection and repair aspects, and management review aspects. Then, the most dominant K3 aspects are policy aspects and planning aspects (Baka et al., 2022; Juarsa et al., 2023; Mudzakir et al., 2023; Mustofa et al., 2023).

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Table 2. Implementation of the SMK3 System at PT

Variable	Indicator	Sub Indicator	Skor (%)	Criteria
Occupational Safety and Health Management System (OSHMS)	K3 Policy	a. K3 Leadership	87,5	Good, if (76-100%)
		b. K3 Policy	87,5	
	K3 planning	a. Goals and Programs	100	Good, if (76-100%)
		b. Hazard Identification	75	
	Implementation of K3	a. Resources and Responsibilities	75	Good, if (76-100%)
		b. Work Accident Recording	75	
		c. Health Monitoring and First Aid	100	
		d. Emergency Preparedness	83,33	
		e. Documentation	100	
	K3 Evaluation	a. K3 Performance Evaluation Monitoring	50	Less, if (26-50%)
	K3 review	a. Review and Improvement of OSHMS Performance	50	Less, if (26-50%)

K3 Planning. The K3 planning at PT. X is as follows:

1. Goals and Programs
   Based on Table 2, it is known that the K3 policy has been implemented with a score of 87.5 percent. It is in line with research by Herlinawati et al. (2016) and Susanto et al. (2021), who state that Representative Management and each Head of Department are responsible for creating and compiling K3 goals and objectives. The related function is responsible for assisting in the achievement of goals and objectives. The relevant manager is responsible for checking and reviewing K3 goals and objectives.

2. Hazard Identification
   Based on Table 2, it can be seen that hazard identification received a score of 75 percent, where hazard identification activities in companies in the food industry are related to operational activities, workplace conditions, and materials or equipment used by the company.

This research is in line with Aldin's (2018) research and Sukwika & Riwayando (2022), namely hazard identification and risk control activities related to operational activities, workplace conditions, and materials or equipment used by the company and replacing one material or equipment with a lower potential hazard. Meanwhile, research conducted by Busyairi et al. (2014) and Wildan et al. (2022) states that companies must understand that good work safety is by providing employees with personal protective equipment, paying attention to the condition of work equipment, carrying out equipment maintenance, providing suitable raw materials, providing good lighting or illumination at the work site, as well as cleanliness and order. Who is awake? If the company can fulfill these things, employees will work more comfortably without worrying about work accidents, so employees will be more productive at work.

Implementation of K3. The implementation of K3 at PT. X is as follows:

1. Resources and Responsibilities
   Resources and responsibilities for the implementation of occupational safety and health have been achieved by 75 percent in companies in the food industry because the company provides the resources needed for the implementation and control of the K3 management system. These resources include human resources and special skills, technology, and financial resources that are important for the implementation and control of the K3 Management System.

   Research by Nurwildani et al. (2021), Wary et al. (2023), and Mudzakir et al. (2023) regarding responsibility states that improving occupational safety and health will be effective if all parties in the company are encouraged to participate in the implementation and development of SMK3. To respond to an emergency, the procedures carried out include conveying information in the event of an emergency, assessing the emergency, communicating with relevant parties, both internal and external, carrying out evacuations, providing assistance to injured victims, and reporting emergency management.

2. Work Accident Recording

   Based on Table 2, it is known that reporting and recording work accidents has achieved 75 percent because companies in the food industry have determined and implemented recording, investigating, and analyzing K3 incidents to (a) Determine deviations from K3 and other factors that can occur. Causing or abetting the occurrence of the incident; (b) Identifying the need for corrective action; (c) Identifying opportunities for preventive action; (d) Identifying opportunities for continuous improvement; (e) Communicating the results of the investigation.

   Meanwhile, Bahwiyanti's research (2021) and Sukwika & and Riwayando (2022) stated that every time an emergency occurs, an investigation must be carried out by K3 officers or experts. The investigation report was submitted to P2K3, along with recommendations for recovery and follow-up. If there are questions from the public or journalists, the authority to answer is given to the Finance and Personnel Unit.

3. Health Monitoring and First Aid

   Based on Table 2, it is known that the Health Monitoring and First Aid sub-indicator is implemented with a score of 100 percent because the company has implemented K3 to reduce the effects that may arise due to work accidents in implementing the occupational health and safety management system in the food industry it has provided clinic facilities, which is equipped with a pretty good number of first aid kits which are equipped with medicines that can provide first aid.

   Health monitoring is also provided by this company, which is managed by third-party personal instructors who have specialized professions in one of the hospitals that have collaborated with the company. Companies in the food industry make efforts to monitor the health of working employees; health checks are carried out based on plans that have been prepared.

   This research is in line with Astari et al. (2022), Baka et al. (2022), and Purwanti et al. (2023), which state that the company initiates routine medical check-up activities every year for all employees. Mitigation steps implemented by the company against work-related diseases include modifying equipment, regularly checking the cleanliness of work locations, socializing occupational health, monitoring the use of PPE, starting to regulate work rhythms, and periodic environmental checks. The results of the medical check-up become a guide for companies in implementing a healthy living culture for employees. The company also continues to socialize the prevention of risks and dangers in the work environment based on each business unit.

4. Emergency Preparedness

   The results of data processing based on questionnaires and interviews from this research show that emergency preparedness is implemented with a score of 83.33 percent because the company has procedures for handling emergency or disaster preparedness, which has provided light fire extinguishing equipment (APAR) and hydrants. According to standards, it is constantly checked periodically within a certain period.

   This research is in line with Kusuma's research (2017), Susanto et al. (2021), and Yuvendra et al. (2022) stated that many warning signs have been installed in pump houses and offices, such as high voltage rooms if a fire occurs, use emergency evacuation routes, emergency evacuation gathering points, as well as SOPs for carrying out repairs and checks such as how to use cheaters. Correctly, using scaffolding safely, and an appeal to always work safely.

5. Documentation

   Documentation functions as a support for the implementation of OSH, notes on K3 guidelines and programs to be achieved, including functioning as a guide to achievements related to the evaluation of K3 implementation.

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The DocumentationDocumentation contained in this company is in the form of soft files and complex files in the form of Regulations, Procedures, Work Instructions, and all related supporting documents, as well as recording work accident cases OSH posters.

From the results of this research, it is known that the documentation sub-indicator has been achieved with a score of 100 percent. At the same time, Nurwildani et al. (2021) and Sukwika & Riwayando (2022) stated that documentation functions to determine whether there is an implementation of K3 related to the documentation management system identified in storage and use.

K3 evaluation. Based on Table 2, the company strives to improve the implementation of K3 for the long term, and this is realized well. Therefore, in evaluating K3 in this company, each superior has the right to supervise all work in each division by paying attention to the abilities of each employee or staff he leads, to ensure that employees carry out work according to procedures in a safe manner. If they are found to be not working safely, then action can be taken by reprimanding or directing employees to make the work safer.

The implementation of OSH evaluation in this company still has a lot to improve, one of which is employee awareness regarding the importance of using personal protective equipment (PPE) (Kartikasari & Sukwika, 2021); Sulistyowati & Sukwika, 2022). This research is in line with Damai's research (2016), Lazuardi et al. (2022), and Juarsa et al. (2023). It is in line with the low level of employee awareness regarding the implementation of K3 in the use of personal protective equipment when carrying out the production process
This evaluation of regulatory requirements and other K3 requirements shows the company's consistency in its commitment to implementing the K3 management system. However, this sub-indicator has not been implemented well, so there needs to be an in-depth evaluation regarding its implementation so that it can be concluded that the score for the evaluation sub-indicator is 50 percent. Meanwhile, Pangkey's (2012) research states that an evaluation of the effectiveness of implementing SMK3 needs to be carried out as reference material for improving/perfecting the regulations or guidelines that have been created.

K3 review. Based on Table 2, the review and improvement of SMK3 performance carried out in the company have obtained a score of 50% because, of improving occupational safety and health as well as protecting the environment to increase the company's efficiency and productivity, the implementation of SMK3 needs to be developed continuously in This company's review and improvement of SMK3 performance has not been carried out correctly. There are still obstacles to implementing OSHMS in companies, namely limited human resources in cultivating the importance of OSH at work, and there are still many employees who need more awareness of the importance of PPE for personal safety at work.

This research is in line with research by Wardhani (2017), Kartikasari & Sukwika (2021), and Sulistyowati & and Sukwika (2022). who said that the obstacles that occur in implementing OSHMS include that there are still some employees who need to start using PPE due to workers' lack of motivation to comply with K3 regulations in the company. However, companies can still raise other awareness of the importance of K3. Meanwhile, Fridayanti's (2016) research states that companies should give sanctions to workers who do not want to use the work safety equipment provided by the company. It aims to provide a deterrent effect to workers who need to comply with company regulations regarding the use of work safety equipment while working.

Efforts to Overcome Work Accidents. Based on research data, several company efforts have been made to prevent work accidents, namely by providing SMK3 training and identifying potential hazards in the company. In the work environment, hazard identification and risk assessment are essential steps to protect worker health and safety. Hazard identification and risk assessment, or what is often called HIRA (Hazard Identification & Risk Assessment) involves collecting data on all potential hazards that arise in the work environment which can affect occupational health including physical, chemical, biological and psychosocial hazards as well as conducting a risk assessment of the hazards. (Sukwika & Riwayando, 2022; Irianto et al., 2022; Lazuardi et al., 2022).

Meanwhile, Saputro's research (2016), Mudzakir et al. (2023), and Mustofa et al. (2023) state that when carrying out work that contains risks, it is necessary to have self-awareness in implementing K3 within oneself so that the risk of work accidents can be avoided.

1. SMK3 Training in Companies
   The company at PT. X has carried out capacity development in the form of training. Training is carried out by bodies that have sufficient experience and are accredited according to applicable laws and regulations. This training is given to all employees, including new employees so that it can be developed so that employees can work comfortably in a safe environment. The training that companies in the food industry usually carry out is in the form of fire simulation training, emergencies, and SMK3 education. Herlinawati et al. (2016), Baka et al. (2022), and Purwanti et al. (2023) state that all work that may pose a risk must receive adequate training, and only workers who have the permits and competency required to be able to take part in the task.

2. Identify Potential Dangers in the Company
   Companies at PT. Identification of work hazards and environmental aspects is maintained. It describes changes in risk control and critical environmental aspects when there are process changes or new processes, activities, products, and services. The identification of these hazards will be reviewed regularly by each division, and the results will be reported in the K3 management review meeting as an effort to overcome work accidents in the company by identifying potential hazards. Based on research by Supriyadi et al. (2015), Lazuardi et al. (2022), and Yuvendra et al. (2022) stated that the hazard identification process is a continuation process of activity identification, in the hazard identification process the risk of each activity that has been identified will be explained. Infrastructure maintenance actions often involve accidents and actions that lead to work hazards, which are always followed by the potential for work accidents due to lack of human attention, incorrect or improper use of equipment, poor use of personal protective equipment and other errors that occur in the workplace. Consulting with experienced employees is one of the easiest and most effective things in the process of identifying workplace hazards. These employees know better what can be done wrongly, and they know the reasons why based on their previous work experience.

4. CONCLUSION

Based on the results of the research and discussion, the implementation of SMK3 in the food industry has been achieved with an average score of 80.30 percent in the excellent category. Of course, this still requires improvements and corrections carried out in accordance with applicable standards and regulations for each sub-indicator that has an achievement score of 50 percent based on applicable laws and regulations. Apart from that, the company's efforts to overcome work accidents are carried out through company coaching by carrying out skills and ability development for each workforce, such as emergency simulations, SMK3 education, and identification of hazards in the workplace.

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