The Implementation of Work Improvement in Small Enterprises (WISE) to Enhance the Quality and Hygiene of the Work Environment

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ABSTRACT

A healthy and safe working environment is essential for enhancing productivity and ensuring worker well-being, especially in small enterprises such as MSME (Micro, Small, and Medium Enterprises). Despite their importance, many MSMEs struggle to meet hygiene and safety standards due to limited resources lack of awareness. This study evaluates the workplace conditions at a tofu-processing MSME and identifies key barriers to improving environmental quality and hygiene. The research utilised the Work Improvement in Small Enterprises (WISE) approach, which involves step-by-step activities including workplace observation, hazard identification, issue prioritization, implementation of improvements, and follow-up evaluation. The most critical problems identified were the absence of SOPs, lack of safety signs, and inadequate sanitation facilities. Solutions were developed using the WISE method, including SOP drafting, safety signage installation, and sanitation enhancement. The implementation of WISE has proven effective in improving workplace hygiene and safety, offering a practical model for similar small enterprises.

Keywords: WISE, Quality, Hygiene, Work Environment.

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) in the food industry sector, including tofu production, play an essential role in meeting community consumption needs, providing employment opportunities, and contributing significantly to the local economy. Their flexibility, close connection to local markets, and use of locally sourced raw materials make them a vital pillar of economic growth. However, despite their strategic importance, MSMEs often face various operational challenges, one of the most critical being the condition of the working environment. However, in carrying out their production processes, MSMEs often face various challenges, one of which is related to the working environment conditions (Setyowati et al., 2023). The work environment is everything that is around the worker and is able to influence the worker in doing the work (Saefullah & Basrowi, 2022; Tarunokusumo et al., 2022). According to (Ahmad et al., 2022) work environment is a social, physical, and psychological life in an agency that can affect employee performance. Ideal work environment conditions are the main factor that affects the level of productivity in an industry (Deshaspitri et al., 2025). Aspects such as cleanliness of the work area, air circulation, sanitation facilities, lighting, temperature, and employee hygiene play an important role in influencing the efficiency and quality of production results (Rahayu & Rushadiyati, 2021; Safutra et al., 2025).

Good workplace conditions/work environment not only guarantee smooth production processes, but also have a direct impact on the quality of the products produced (Setyowati et al., 2023). For example, in tofu-producing MSME, the temperature of the production room is too hot, excessive humidity, and inadequate ventilation can reduce the endurance and concentration of workers, which in turn can reduce work

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efficiency (Lubis et al., 2025). In addition, exposure to hot steam and smoke from the soybean boiling process, as well as the use of chemicals such as preservatives and coagulants without adequate protection, can increase long-term health risks(Hariadini et al., 2020). Non-ergonomic work facilities, such as desks with inappropriate heights, can also cause fatigue and muscle injuries in workers, resulting in decreased work efficiency and productivity (Pratiwi & Rosidati, 2024).

XYZ Factory is one of the Micro, Small, and Medium Enterprises (MSMEs) located in the Purwogondo area RT 05/RW 01 Kartasura, Sukoharjo. Established since 2010, in its operations this MSME is supported by 15 workers who are tasked with various stages of production, starting from the soaking process, washing soybeans, grinding, boiling, filtering, coagulating, printing, and the final process is cutting. Some of the tofu variants produced include white tofu, yellow tofu, kepel tofu, and pong tofu. This Micro, Small, and Medium Enterprise (MSME) has a daily production capacity of an average of 50-60 buckets or reaching 10,000 pieces of tofu/day. The products produced have obtained regular customers, including restaurants, traders in traditional markets, catering services, and consumers who buy directly at the production location.

Various challenges in the working environment are still obstacles in MSME XYZ, which not only threaten productivity but also cause a decrease in the quality of the products produced. Some examples of existing problems include lack of attention to the cleanliness of the production process, inadequate facilities, and the absence of fixed standard operating procedures (SOPs) for employees who work. Lack of attention to cleanliness in the production process can be seen from the floors and walls that are difficult to clean, so that soybean residue, wastewater, and tofu dregs often accumulate and become a breeding ground for bacteria or fungi. In addition, poor ventilation also causes the air in the room to become humid and smelly, which can accelerate the growth of microorganisms.

Based on the various problems found, it is necessary to evaluate the work environment in MSME XYZ as a reference for making improvements. It is known that the XYZ Factory is not yet in accordance with the Work Improvement in Small Enterprise (WISE) guidelines issued by the International Labor Organization (ILO). Work Improvement in Small Enterprise (WISE) is a very pragmatic approach and focuses on low-cost interventions that are able to improve labor productivity and working conditions simultaneously (Takeyama et al., 2006). The Work Improvement in Small Enterprise (WISE) method is easy to implement and provides clear benefits, building the confidence of business owners and workers in implementing improvements and making real changes in the workplace (Saputra & Kusmindari, 2023).

Research on work environment evaluation has been conducted by several researchers. (Wardanu & Anhar, 2016) in his research at the Joint Business Group (KUB) WIDA MANTOLO, Benua Kayong, it was found that the processing room must be immediately evaluated and repaired to improve the hygiene of the production process. (Alfarizi & Kusmindari, 2023) evaluating the coffee production process in the Mamak Anik Small and Medium Industry (IKM), South Oku using the Work Improvement in Small Enterprise (WISE) method. (Kuncoro et al., 2025) In his research at PT Okian Makmur Abadi, he produced proposals for improving the production process where product packaging design, production process flowchart, and production room layout were the most priority criteria. (Yusuf & Kusmindari, 2024) by using the Good Manufacturing Practices (GMP) and Work Improvement in Small Enterprise (WISE) methods, the company has succeeded in evaluating the production process and improving the Health, Safety and Occupational Health (K3) standards in the Nusantara Coffee Small and Medium Industry.

Therefore, it is necessary to make improvements in the tofu production process at MSME XYZ by implementing the Work Improvement in Small Enterprise (WISE) method. By implementing this method, it is hoped that the work environment will be better and cleaner, so that the products produced are not only safe for consumption, but also meet better quality standards. In addition, this improvement aims to create a safer and more comfortable work environment, reduce the risk of accidents, and increase productivity. That way, MSME XYZ can be more competitive in the market and maintain consumer trust.

2. Methodology

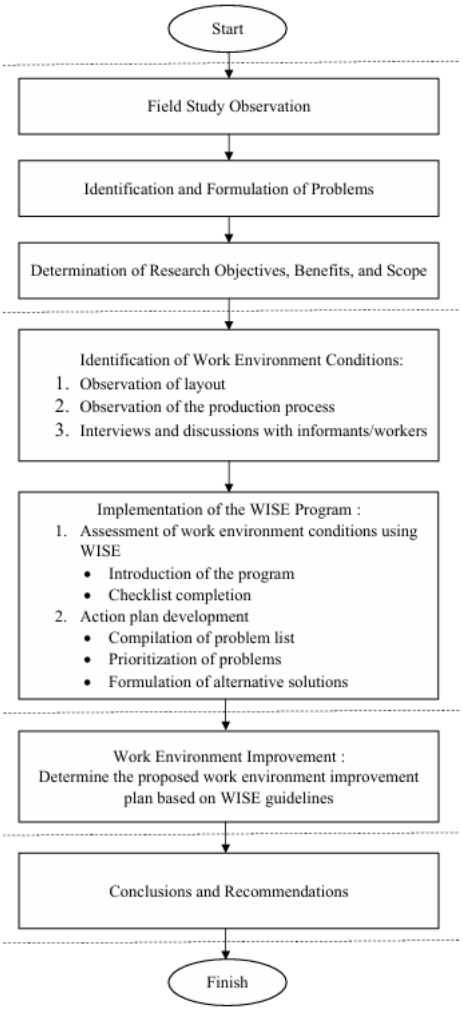

Figure 1. Research Flowchart

Figure 1 shows a flowchart of the research that has been conducted. This study was conducted through field observations and direct interviews to gain an in-depth understanding of the working environment at UMKM Tahu Suripto, focusing on cleanliness, facility adequacy, and the Occupational Safety and Health (OSH) system. Observations during tofu production covered facility layout, production flow, and insights from workers and the owner. The collected data served as the basis for analysis using the Work Improvement in Small Enterprises (WISE) method. Initial condition assessment involved examining facility layout, production processes, physical conditions (e.g., lighting, sanitation), and workforce conditions. The researcher introduced the WISE program's objectives to the owner and employees, then assisted in completing the WISE checklist consisting of eight criteria and 37 sub criteria related to material storage, workplace design, machine safety, physical environment, electrical hazards, fire prevention, welfare facilities, and work organization, following ILO (2004) guidelines. Identified issues were prioritized using the Urgency, Seriousness, and Growth (USG) method. Each problem was then analyzed using the 5W+1H approach to determine root causes and appropriate corrective actions. The resulting priority scores guided the formulation of practical, gradual, and sustainable improvements aligned with WISE principles. These improvements aim to enhance productivity, safety, comfort, and work motivation, creating a better working environment for all employees.

3. Results and Discussion

3.1. Identification of Work Environment Conditions

MSME XYZ is one of the tofu producers located in Purwogondo Village RT.05/RW 01, Kartasura District, Sukoharjo Regency, Central Java. This MSME was founded by Mr. Habibi in 2010. The number of workers in this MSME is 15 people consisting of 6 men and 9 women. The XYZ factory has a building area of 160 m² to support the stages of tofu production, which include soaking, washing, grinding, boiling, filtering, coagulating,

molding, and cutting. The following is the layout of the work environment in the tofu production process at MSME XYZ.

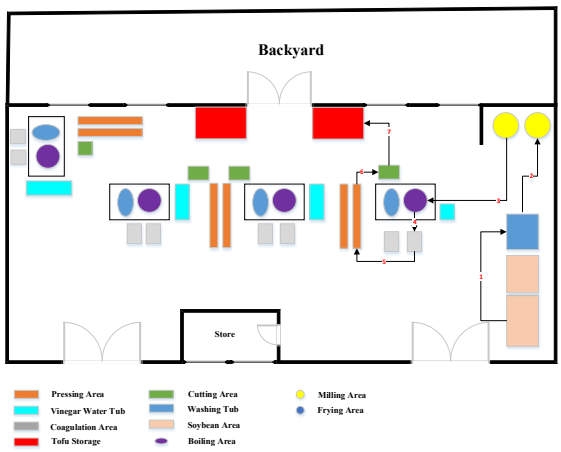

Figure 2. XYZ MSME Layout

The tofu production process at MSME XYZ involves 15 employees who are responsible for the entire production chain, from processing raw materials to producing tofu products. In carrying out its production process, this MSME uses various equipment, including grinding machines, buckets, drums, plastic baskets, cloth, molds, boiling furnaces, coagulating tubs made of cement and coated with stainless steel, cutting knives, baking sheets, pans, and rulers. The main raw materials used are soybeans, water, and acetic acid. The tofu making process at this MSME consists of several stages, namely raw material preparation, soaking, washing, grinding, boiling, filtering, coagulating, molding, pressing, and cutting. The following is the Operation Process Chart (OPC) of the tofu making process at MSME XYZ.

Based on the results of interviews with employees at the XYZ MSME production site, a number of problems were found that require further attention, the first being related to the lack of facilities to support employee welfare, especially in terms of sanitation. Workers complained about the lack of basic facilities such as toilets, hand washing facilities, or other adequate sanitation facilities in the work area. The absence of these facilities not only reduces work comfort, but also has the potential to cause health and hygiene problems that can have a direct impact on product quality and worker welfare.

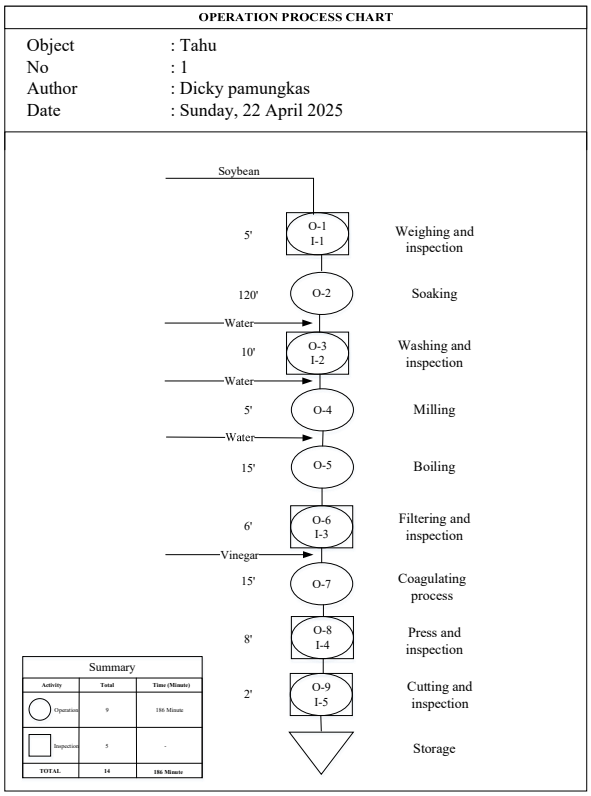

Figure 3. Operation Process Chart (OPC) Tofu Production

The second problem concerns the low level of employee understanding of occupational safety aspects, especially related to fire-fighting procedures. Interview results show that most workers do not have sufficient knowledge of the basic steps to take in an emergency situation, such as evacuation procedures, use of evacuation routes, and how to use a light fire extinguisher (APAR) properly. This condition indicates the need for structured occupational safety training to improve employee preparedness and ability to deal with potential hazards in the production environment.

3.2. Implementation of the WISE Program

3.2.1. Introducing the WISE Program

The WISE program was introduced to owners and workers with presentations and poster distribution with the aim of facilitating understanding and the possibility of discussion or questions and answers. The

following is a poster containing an outline of the implementation of the WISE program.

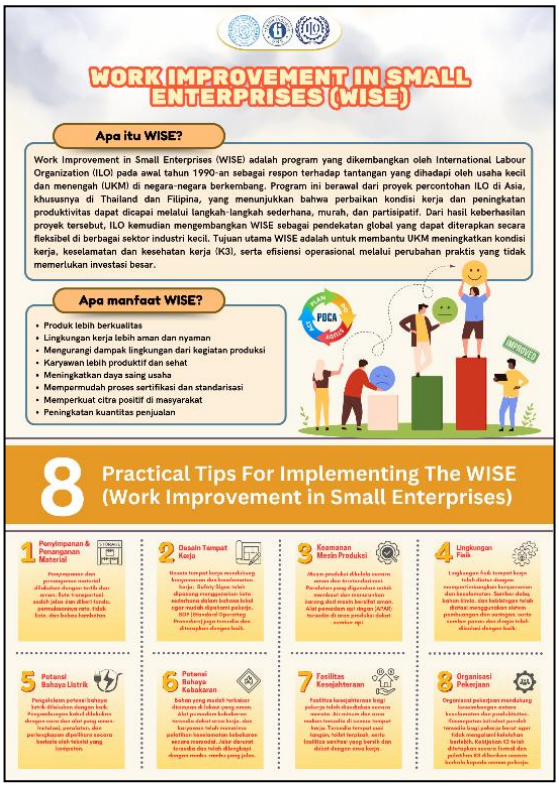

Figure 4. WISE Program Poster

3.2.2. *Completing the Checklist*

The filling is done by marking the checklist adapted from the official guide published by the International Labour Organization (ILO) in the WISE document: Work Improvement in Small Enterprises Package for Trainers (2004), which is designed to help small businesses identify and improve working conditions in a practical and participatory manner. The following is the WISE checklist used.

Filling out the checklist is done by ticking (✓) in the "Yes" or "No" column according to the actual conditions observed in the XYZ MSME work environment.

THE IMPLEMENTATION OF WORK IMPROVEMENT IN SMALL ENTERPRISES (WISE) TO ENHANCE THE QUALITY AND HYGIENE OF THE WORK ENVIRONMENT

WORK IMPROVEMENT IN SMALL ENTERPRISE (WISE) *CHECKLIST*

No	Criteria	Subcriteria	Current Condition	
			Yes	No
1	Material Storage and Handling	There is a clear transportation route with proper markings.		
2		The transportation route surface is level, non-slippery, and free from obstacles.		
3		Ramps are provided instead of stairs in the workplace.		
4		Materials are not placed on the floor but in designated storage areas.		
5		Space is optimized through the use of tiered racks or racks located near the workplace.		
6	Workplace Design	Frequently used materials, tools, and controls are placed within easy reach.		
7		There is a designated room or area for production tools and an employee transit space.		
8		Working height is adjusted to the worker's elbow height or slightly below.		
9		Safety signs are installed using simple words in the local language for easy understanding.		
10		Standard Operating Procedures (SOPs) are available.		

Figure 5. WISE Checklist

Table 1. List of Selected Problems

No	Subcriteria/Selected Issue List
1	The transportation routes are not clear and are not adequately marked.
2	The surface of the transportation route is uneven, slippery, and there are annoying obstacles.
3	Materials are still placed directly on the floor, not in special storage areas.
4	There is no special "house/room" for production equipment or employee transit space.
5	The height of the workplace is not adjusted to the height of the worker's elbows, making it less ergonomic.
6	Employees have not received adequate fire safety education and training.
7	Standard operating procedures (SOPs) do not exist or have not been applied consistently.
8	Moving parts of the machine are not equipped with appropriate guards to prevent accidents.
9	Interlocking safety barriers have not been used to keep workers away from hazardous areas.
10	Light fire extinguishers (APAR) are not available or not easily accessible in the production area.
11	Sources of dust, hazardous chemicals and noise have not been addressed with exhaust or filter systems.
12	Warning signs in areas at risk of electrical hazards have not been adequately posted.
13	The use of personal protective equipment (PPE) by employees is not yet appropriate or is not yet mandatory.
14	Emergency signaling mechanisms are either not available or are not functioning properly.
15	Fire extinguishers are not available or not located near the workplace.
16	Signs, colors, or labels (Safety signs) have not been installed or are not in the local language.
17	Emergency routes are not yet available or are not equipped with clear signs.
18	Drinking water facilities and eating areas are not yet available in all workplaces.

No	Subcriteria/Selected Issue List
19	Hand washing facilities, separate toilets, and clean sanitation facilities are not yet available near the work area.
20	Hygienic rest areas and dining areas are not yet available separately.
21	First aid equipment is not available or first aid personnel have not been trained according to requirements.
22	Adequate personal protective equipment is not yet sufficiently available to employees.

3.2.3. *Determining Priority of Problem List*

This prioritization is done so that improvement efforts can be focused on the most critical aspects and have a major impact on occupational safety, health, quality, and hygiene. To obtain objective and systematic results, the USG (Urgency, Seriousness, Growth) method is used, which aims to evaluate and sort problems based on three main criteria: level of urgency (Urgency), level of seriousness of impact (Seriousness), and potential growth or worsening of the problem if not addressed immediately (Growth).

Table 2. Conditions of the XYZ MSME Work Environment

No	PROBLEM	PRIORITY SEQUENCE OF REPAIR	PROBLEM DEFINITION/CONDITIONS IN THE FIELD
1	Standard operating procedures (SOPs) do not exist or have not been applied consistently.	1	1. There is no written or systematic work schedule. Employees come to work at varying times, without a clear attendance system. 2. Many employees still wear jewelry such as rings, necklaces, and bracelets during the production process. 3. There are employees working without wearing proper work clothes or even without clothes. In addition, there is no use of PPE such as head coverings, masks, or aprons, which are very important in maintaining the hygiene of food products. 4. The entire production process is carried out based on traditional customs without written work guidelines. 5. There are employees smoking during the production process.
2	Signs, colors, or labels (Safety signs) have not been installed or are not in the local language.	2	1. Several points that should have special warning signs such as areas with a risk of slipping due to wet floors, areas with high temperatures (frying or boiling areas), locations of cleaning chemicals, evacuation routes, and locations of fire extinguishers are not equipped with clear visual signs. 2. There are no visual reminders for warnings regarding the use of accessories while working and the use of gloves, boots and aprons. 3. There is no lightning/lightning symbol to warn of the danger of electric shock. 4. Routes for emergency evacuation are not marked in green-white. 5. The absence of a prohibition symbol for eating/drinking increases the risk of product contamination.
3	Hand washing facilities, separate toilets, and clean sanitation facilities are not yet available near the work area.	3	Hand washing facilities and toilets are not yet available near the work area.
4	Materials are still placed directly on the floor, not in special storage areas.	4	1. Soybean raw materials are stored in sacks and placed directly on the floor. 2. The large number of sacks and buckets placed on the floor disrupted worker mobility. 3. The remaining tofu production results/residues are scattered on the floor, causing the floor to become slippery.

3.2.4. *Preparation of Alternative Solutions*

As an initial step in formulating an effective solution, the seven priority problems that have been set are identified using the 5W + 1H approach.

Table 3. Identification of Proposed Design Using 5W1H

No	PRIORITY OF SELECTED ISSUES	5W+1H IDENTIFICATION
1	Standard operating procedures (SOPs) do not exist or have not been applied consistently.	***What*:**The improvement plan includes the preparation and implementation of SOPs for all main work processes, including SOPs on production processes, use of personal protective equipment, and environmental sanitation, accompanied by employee training and routine monitoring.. ***Where*:**Improvements were carried out throughout the XYZ MSME area. ***Who*:**The responsible party is the owner of MSME XYZ and employees are also involved as SOP implementers. ***When*:**The improvements are planned to be implemented within a period of one to two months. This process includes the preparation of SOPs in the first to third weeks, training and socialization to workers in the fourth week, and initial implementation and evaluation in the second month.

		***Why*:**The absence of SOPs can cause irregularities in work processes, reduce production efficiency, increase the risk of work errors and accidents, which can ultimately affect the sustainability of XYZ MSME business. ***How*:** Prepare written SOPs for work processes that do not yet have guidelines. Conducting socialization and training to all workers regarding the SOPs created. Install SOPs in the work area and conduct routine monitoring and evaluation.
2	Signs, colors, or labels (Safety signs) have not been installed or are not in the local language.	***What*:**The improvement plan includes installing safety signs that meet standards and are easy to understand throughout the work area, including hazard signs, PPE instructions, and evacuation directions. ***Where*:**Safety signs are installed in all work areas that have potential risks, such as: near production machines, chemical storage areas, evacuation routes and emergency doors, hand washing areas and sanitation areas, and storage locations for APAR and personal protective equipment. ***Who*:**The responsibility for implementation lies with the owner of XYZ MSME and the WISE implementation team. ***When*:**This repair can be done within 1 week, as it only takes time to design, print, and install the sign. ***Why*:***Safety signs*serves as an important visual guide to increase awareness and compliance with safety standards. ***How*:** Identify hazard-prone areas throughout the work area. Design safety signs that comply with safety color and symbol standards. Print and prepare mounting media (stickers, boards, floor marking paint, etc.). Install safety signs in predetermined locations and socialize the meaning of the signs to workers.
3	Hand washing facilities, separate toilets, and clean sanitation facilities are not yet available near the work area.	***What*:**The proposed improvement plan is to build or provide handwashing and toilet facilities that are separate from the production area and to procure closed trash bins, handwashing soap, and cleaning equipment that meets sanitation standards. ***Where*:**These sanitation facilities need to be located in areas that are easily accessible from the main work area. ***Who*:**The main responsibility lies with the owner of MSME XYZ. ***When*:**Repairs can be carried out within 2–4 weeks, depending on land conditions and available resources.
4	Materials are still placed directly on the floor, not in special storage areas.	***Why*:**Because the absence of proper sanitation facilities close to the work area can reduce the level of hygiene in the work environment, increase the risk of product contamination, and endanger workers' health. ***How*:** Conduct a location survey to determine the most strategic points for building sanitation facilities. Procure necessary materials and equipment, including soap, water taps, drains, and ventilation. Building facilities and educating workers about the importance of maintaining cleanliness and how to use the facilities properly. Schedule regular maintenance and cleaning to maintain sanitary conditions. ***What*:**The proposed improvement plan is to provide special storage areas such as shelves, plastic pallets, or clean tables to place raw materials and products that are easy to clean and resistant to the production environment. ***Where*:**Locations are selected based on their proximity to the production process flow to remain efficient but separate from potential contamination. ***Who*:**The main responsibility lies with the owner of MSME XYZ ***When*:**Repairs can be carried out within 1–2 weeks, depending on the availability of materials and storage equipment. ***Why*:**Because placing materials directly on the floor can increase the risk of contamination, disrupt workflow, and reduce the quality and hygiene of materials/products. ***How*:** Identify the type and volume of materials that require storage. Determine the design and specifications of the storage space according to your needs (for example, tiered shelves or plastic pallets). Purchase or construct suitable storage facilities. Conduct periodic checks to ensure that materials are no longer placed directly on the floor.

3.3. Design of Work Environment Improvement Proposals

The design of the proposed work environment improvement in MSME XYZ is focused on four main priorities, namely the implementation of consistent SOPs, the installation of safety signs in accordance with the local language, the provision of sanitation facilities near the work area, and proper storage of materials. These four aspects were selected based on observations of actual

conditions in the field and the results of identification using 5W1H which showed potential occupational safety risks and a decrease in the quality of the work environment. By addressing these priorities, it is hoped that a safer, cleaner, and more orderly work atmosphere will be created, so as to support the improvement of product quality and maintain the safety and health of workers.

3.3.1. *Preparation and Implementation of Standard Operating Procedure (SOP)*

This process begins by identifying all activities in the production flow, from raw material processing to sanitation of the work environment. Each activity is then analyzed to determine the potential risks that may arise. Based on the results of this identification, the SOP is prepared in writing with a standard format that includes objectives, scope, guidelines/regulations that are used as references, and implementation steps/procedures. To facilitate understanding of the SOP, posters or infographics are provided containing a summary of work procedures that are installed in strategic locations so that they are easy for workers to see and remember. After that, internal validation is carried out through simulations or trials with employees. The next stage is socialization and training for all workers to ensure understanding and compliance with the newly issued SOP. The reference for compiling this SOP refers to:

1. Regulation of the Minister of Manpower and Transmigration of the Republic of Indonesia Number PER.08/MEN/VII/2010 concerning Personal Protective Equipment.
2. Good Food Production Methods for Home Industry (CPPB-IRT) from BPOM.

3.3.2. *Procurement and Installation of Safety Signs*

The first step begins with identifying hazard-prone points throughout the production area, such as the boiling area, grinding, molding/cutting, raw material storage area, or evacuation route. Once the risk points are identified, safety sign designs are made by referring to international color and symbol standards, and using local languages that are easily understood by workers. Signs can be in the form of stickers, plastic boards, or floor markings as needed. Installation is carried out in a location that is easily visible, then continued with socialization to workers regarding the meaning and function of each sign. Periodic monitoring also needs to be carried out to ensure that the signs remain clearly visible and are in the right position. The procurement and design of these safety signs refer to several safety regulations and standards, namely:

1. Republic of Indonesia Law Number 1 of 1970 about Occupational Safety.
2. ISO 3864-1:2016 on Principles of Color and Symbol Design for Safety Signs.
3. ANSI Z535 Series from the American National Standards Institute, which is the international reference in the design and use of symbols and colors on safety signs.

3.3.3. *Provision of Adequate Sanitation Facilities*

The improvement phase begins with conducting a survey to determine strategic locations that are easily accessible to workers. After that, facilities are designed such as hand washing facilities complete with liquid soap and dryers, toilets separate from the production area, and closed trash bins. All facilities must comply with cleanliness standards and have good ventilation. After construction is complete, workers are given education on how to use the facilities and the importance of maintaining personal sanitation. Facility maintenance is carried out routinely, including daily cleaning and replacement of cleaning equipment. The reference for providing these sanitation facilities refers to:

1. Minister of Health Regulation No. 1096 of 2011 concerning Hygiene and Sanitation of Catering Services,
2. Good Food Production Methods for Home Industry (CPPB-IRT) from BPOM.

3.3.4. Provision of Material Storage Place

The first step is to identify all materials that require storage, both in terms of volume and characteristics. After that, the ideal storage design and materials are determined, namely those that are easy to clean and resistant to moisture. Procurement is carried out through purchasing or manufacturing as needed. Workers are given brief training on how to properly store materials and maintain the facility. Routine checks are also carried out to ensure that no materials are placed directly on the floor. This effort refers to the standards:

1. Good Food Production Methods for Home Industry (CPPB-IRT) from BPOM.

4. Conclusion

This study aimed to identify, prioritize, and design improvement solutions for the working environment at UMKM Tahu Suripto using the Work Improvement in Small Enterprises (WISE) method. The identification and priority assessment using the Urgency, Seriousness, and Growth (USG) method revealed four main issues: the absence of Standard Operating Procedures (SOP), lack of safety signs, inadequate sanitation facilities near the work area, and materials stored directly on the floor. Further analysis using the 5W+1H approach produced practical solutions tailored to actual workplace conditions.

The application of the WISE method proved effective as a systematic approach to improving the working environment in small-scale enterprises. This method not only facilitates the identification of problems but also assists in developing practical and gradual solutions, such as creating and implementing SOPs, installing safety signs, providing proper sanitation facilities, and adding material storage racks. The implementation of these improvements is expected to enhance safety, comfort, cleanliness, and work productivity, while creating a more organized workplace for all employees.

This study has limitations in that it did not include quantitative measurements of physical environmental conditions, such as noise levels, humidity, and lighting intensity. Future research is recommended to conduct such measurements using tools like an environment meter to obtain more comprehensive data and strengthen the validity of the analysis. In addition, further studies could expand the scope to other MSMEs in similar sectors to compare the effectiveness of the WISE method in different business contexts.

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