

**ANALYSIS OF OCCUPATIONAL HEALTH AND SAFETY (OHS) IN  
SAZTRO\_WORKS MSME WITH 6S IMPLEMENTATION**

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By

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YOGYAKARTA

2023

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Yogyakarta, March 24, 2023



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**ANALYSIS OF OCCUPATIONAL HEALTH AND SAFETY (OHS)  
INSAZTRO\_WORKS MSME WITH 6S IMPLEMENTATION**



**Yogyakarta, March 24 2023**

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INSAZTRO\_WORKS MSME WITH 6S IMPLEMENTATION**

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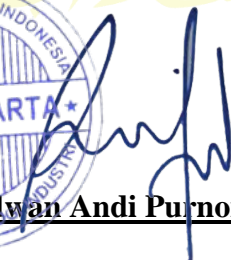
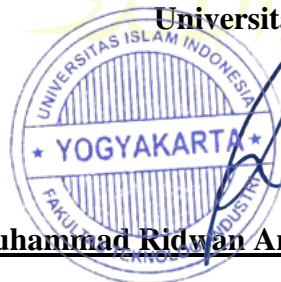


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## **DEDICATION PAGE**

This undergraduate thesis which spent a lot of effort, is dedicated to my family, Ayah, Ibu, Nadine, Fiqi, Wadya, Timir. Without my family, I am nothing. Also, to all of my friends in Industrial Engineering 2016 who accompanied me since I didn't have any idea about university life.

**MOTTO**

**Man jadda wajada**

**“Barang siapa yang bersungguh sungguh maka dia akan berhasil”**

**Surat Al Baqarah ayat 286**

## PREFACE

*Assalamualaikum Warrahmatullahi Wabarakatuh,  
Asyhadu Alla Ilahailallah Wa Asyhadu Anna Muhammadarrasulullah Allahuma  
Shalli'ala Muhammad Wa'ala Alaihi Washobihi Wasalam,*

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***Wassalamualaikum Wr. Wb.***

Yogyakarta, March 24 th, 2023

A handwritten signature in black ink, consisting of several fluid, overlapping strokes that form a stylized representation of the name M. Dicky Afrizal.

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## **ABSTRACT**

This thesis investigates the occupational health and safety (OHS) practices within Saztro\_Works, a Micro, Small, and Medium Enterprise (MSME). The study focuses on the implementation of the 6S method, aiming to enhance workplace organization and safety. Through a comprehensive analysis, this research assesses the effectiveness and impact of the 6S approach on promoting a safer working environment. The study's findings provide valuable insights for improving OHS standards in MSMEs, ultimately contributing to better employee well-being and increased productivity.

**Keywords:**

Occupational Health and Safety, OHS, Saztro\_Works, MSME, 6S Implementation.

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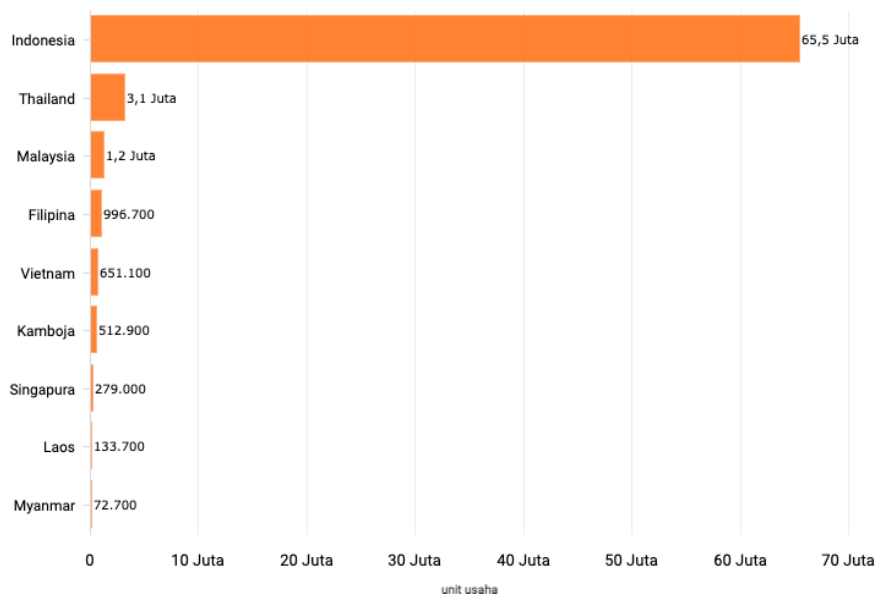
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## CHAPTER I INTRODUCTION

### 1.1 Background

Indonesia is a developing country which in its efforts to achieve economic growth relies on industrial sectors. MSME (Micro Small and Medium Enterprise) or in Indonesia is UMKM (*Usaha Mikro Kecil dan Menengah*) has four reasons which explain that MSME (Micro Small and Medium Enterprise) have a strategic position in Indonesia. First, MSME (Micro Small and Medium Enterprise) does not require large capital like some large companies in general so that their establishment is easier. Second, the workforce needed does not demand a certain higher and formal education. Third, most MSME (Micro Small and Medium Enterprise) are located in rural areas, so they don't need infrastructure like big companies. Fourth, MSME (Micro Small and Medium Enterprise) has stronger resilience when Indonesia is hit by an economic crisis.



Sumber: Katadata.co.id

From the data above, it can be seen that the number of MSME (Micro Small and Medium Enterprise) in Indonesia in 2021 will reach 65.46%. This makes Indonesia the country with the most MSME (Micro Small and Medium Enterprise) in ASEAN. This also proves that in 2021, MSME (Micro Small and Medium Enterprise) in Indonesia can

use 97% of the workforce so that they can contribute 60.3% to GDP (Gross Domestic Product) and contribute 14.4% to national exports (Katadata, 2022).

Various types of industrial sectors carried out by MSME (Micro Small and Medium Enterprise) in Indonesia are evidence of industrial development in Indonesia. So that Indonesia has many types of industries. The industry in managing its activities uses various levels of technology ranging from simple technology to advanced technology. The higher the technology used, the higher the risk of danger in it. The government also regulates the safety of workers, this is regulated in Undang-Undang No.1 Tahun 1970, which says that:

*“Keselamatan dan kesehatan kerja (K3) adalah suatu upaya praktis untuk memberikan jaminan keselamatan dan meningkatkan derajat kesehatan para pekerja/buruh dengan cara pencegahan kecelakaan dan penyakit akibat kerja, pengendalian bahaya di tempat kerja, promosi kesehatan, pengobatan dan rehabilitasi.”*

According to the recap of the International Labor Organization (ILO) in the journal (Abidin & Ramadhan, 2019) that every 20 seconds 190 workers face work accidents, due to lack of safety from the work environment or work area. Work accidents in Indonesia can be counted, there are 7,400 incidents and more than 2.4 million fatalities per year due to the lack of workplace safety, last but not least the last fact is that there are 377 accidents at work due to the lack of safety issues every year.

Occupational Health and Safety (OHS) is an integral part of the labor system and human resources. OHS (K3) is not only very important in improving social security and welfare of its workers, but far from its OHS has a positive impact on the sustainability of work productivity. Therefore, the current OHS issue is not only an obligation that must be considered by workers or for the owners, but also must be fulfilled by a work system and company organization.

In other words, at this time OHS is not merely an obligation, but has become a necessity for every worker and for every form of work activity. Occupational Health and Safety (OHS) is a condition in work that is healthy and safe both for work, for the company and for the community and the environment around the factory or workplace.

Safety is a person's safe condition due to their working activities. These safe conditions can come from internal or external.

One of the MSME industries that requires a high level of work area security, one of which is a workshop. In this study, there are MSME in the modification, restoration, welding and motor paint workshop, namely Saztro\_Works. Saztro\_Works is an MSME workshop on Jl. Laksda Adisucipto with the owner's name Aribowo Sastro. He admitted that there was no knowledge of work area safety in general or in detail.

Therefore, researchers want to find out the potential for work accidents that exist through the HAZOP (Hazard and Operability Study) method and apply preventive measures with the 6S method (Sort, Set-in order, Shine, Safety, Standardize, and Sustain). The main goal of researchers using the 6S method is to present a well-organized, neat and clean environment in the workplace, in order to minimize the potential for work accidents that have been calculated through the previous HAZOP method.

Occupational Health and Safety (OHS) is a critical aspect that should not be overlooked in any workplace, regardless of its size. This research titled "Analysis of Occupational Health and Safety (OHS) in Saztro\_Works MSME with 6S Implementation" holds significant urgency for several reasons.

Firstly, the safety and well-being of employees should always be a top priority for any organization. By conducting this research, we can assess the existing OHS practices within Saztro\_Works MSME and identify areas that require improvement. This analysis can help prevent workplace accidents, injuries, and occupational diseases, thereby ensuring a healthier and safer working environment. Secondly, implementing the 6S methodology is crucial for enhancing workplace efficiency and productivity. The 6S system focuses on sorting, setting in order, shining, standardizing, sustaining, and safety. By incorporating these principles into the OHS framework, organizations can improve organization, cleanliness, and safety standards, ultimately leading to better productivity and employee satisfaction.

Thirdly, as an MSME (Micro, Small, and Medium Enterprise), Saztro\_Works plays a significant role in the local economy. Research on OHS practices specifically tailored to MSMEs can be valuable in promoting a culture of safety in this sector. By

addressing the unique challenges faced by MSMEs, such as limited resources and manpower, this research can provide practical insights and recommendations to improve OHS practices and compliance within the MSME context. Furthermore, this research can serve as a model for other similar MSMEs in various industries, promoting a wider adoption of effective OHS practices. By sharing the findings and recommendations, it can contribute to the overall improvement of OHS standards in the MSME sector, leading to reduced workplace hazards and better protection for employees.

In conclusion, the research on "Analysis of Occupational Health and Safety (OHS) in Saztro\_Works MSME with 6S Implementation" is of utmost importance due to its potential to enhance workplace safety, productivity, and overall well-being of employees. By focusing on MSMEs and incorporating the 6S methodology, this research can address the specific challenges faced by this sector and provide practical recommendations that can be applied in similar contexts.

Therefore, starting from the data and the level of urgency of work safety at Saztro\_Works, the researchers took the title "Analysis of Occupational Health and Safety (OHS) in Saztro\_works MSME (Micro Small and Medium Enterprise) with 6S Implementation".

## **1.2 Problem Formulation**

Based on various problems in the background, the problem formulations in this study are:

1. Based on the analysis of calculations using the HAZOPS method for Saztro\_Works MSME, how much bad risk value or deviant risk value is obtained for MSME.
2. What preventive action solutions can be given to Saztro\_Works so that the production or work area becomes more conducive and cleaner.
3. What improvement solution can be given to Saztro\_Works MSME so that operators in carrying out their work activities run well and minimize risk based on the implementation of 6S



### **1.3 Research Objectives**

The objectives of this research are to:

1. Analyze occupational health and safety in Saztro\_Works MSME with HAZOPS analysis.
2. Providing solutions and preventive actions by implementing 6S methods.

### **1.4 Problem Limitations**

The limitations of the problem specified in this study are:

1. This research only discusses the problems that exist in Saztro\_Works MSME.
2. Respondents in the report are divided from owners and operators who work at MSME Saztro\_Works.
3. Calculation analysis method using HAZOPS accompanied by preventive actions or solutions by implementing 6S.

### **1.5 Research benefits**

The research benefits obtained from this study are as follows:

1. Improving health and comfort in production activities at MSME Saztro\_Works.
2. Can improve the quality of products produced by MSME with the implementation of the 6S that have been given.
3. Improving working conditions that are more conducive and orderly in carrying out production activities at MSME Saztro\_Works.
4. Reducing the percentage of work accidents at MSME Saztro\_Works by providing 6S preventive measures.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 Deductive Study**

This chapter discusses the basic theories used to process and analyze the data that has been obtained from the implementation of this research. The theory used in this chapter will be used as the basis for research to carry out the research so that the correctness of the existing methods can be accounted for. The theoretical basis used to support this research is the process of production activities at MSME (Micro Small and Medium Enterprise) Saztro\_Works and the Theory of the HAZOP Method.

##### **2.1.1 Occupational safety and health (OHS)**

Occupational safety and health have several definitions experts studying about the field. According to Tasliman (1993:1), safety and occupational health concerning all elements involved in work activities. Regarding the subject, namely the person who does the work, the object, namely the objects or goods that are done, the work tools used work in the form of machinery and other equipment, as well as related environments both humans and objects or goods.

Based on Peraturan Menteri No. 12 tahun 2015, safety and Occupational health are all activities to guarantee and protect safety and health of workers through accident prevention efforts and work-related diseases. According to Sarinah (2016:25), safety and Occupational health is a science and practical application that prevents the possibility of accidents and diseases caused by work and work environment.

Based on OHSAS (Occupational Health and Safety Assessment Series) 18001 (2007), occupational health and safety are the conditions and factors that impact or can impact, on the health and safety of employees or other workers (including contract workers and contractor personnel, or other persons on site work). Explanation from several experts above about the definition of safety and Occupational health can be concluded namely, occupational safety and health is an action that implies an understanding of the theory occupational safety and health and aims to maintain, both for

workers and equipment from accidents and damage so that it can guarantee wholeness and perfection in carrying out a job activity.

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### **2.1.2 Occupational Safety and Health (OHS) Objectives**

Occupational safety and health are made based on the problems that occur related to occupational safety and health in the industrial world and in the world education. The goal of Occupational safety and health is an effort to reduce or eliminate problems that can be detrimental. According to Tasliman (1993:2), the purpose of implementing occupational safety and health is as follows:

1. Protect the labor due to their implementation of activities to obtain safety and health also welfare of life.
2. Ensure labor in increasing national productivity by appropriate safety, health and welfare.
3. Ensure safety and health for everyone who is at the workplace and in the work environment.
4. Guarantee the sources of production and work equipment used, maintained, maintained safely and efficiently.
5. Prevent and reduce/minimize the occurrence of accidents that occur at work and the environment.
6. Prevent and reduce/minimize the possibility of fire as a form of accident in industry and workplaces associated with fire, chemicals, electricity and flammable materials burnt.
7. Prevent and reduce losses suffered by all parties due to accidents and fires.
8. Provide legal and moral protection for the labor and management industry.
9. Provide first aid in an accident, as a step of first aid in dealing with accidents that occur.

According to Suma'mur, occupational safety and health are two things:

A. Work Safety Purposes (Suma'mur, 1981:2):

1. Protect workers for their right to safety in carrying out work jobs for the welfare of life and increase production as well as national productivity.
2. Ensure the safety of everyone else who is in the workplace.
3. Production sources are maintained and used safely and efficiently

B. Occupational Health Objectives (Suma'mur, 1967:2):

1. As a tool to achieve the highest degree of health of the workforce, both workers, farmers, fishermen, civil servants, or workers free, thus intended for the welfare of labor.
2. As a tool to increase production based on increased efficiency and productivity of the human factor in production.

Because nature is always in accordance with the intent and purpose of development within a country, then Corporate Hygiene and Occupational health must always be included in this development.

According to Anizar (Prasetyo, 2012:11) the purpose of safety and occupational health include:

1. Maintain and improve the occupational health status of workers in the field so that the welfare of workers is guaranteed.
2. Prevent the occurrence of workers health problems in the working environment which are caused by the circumstances / conditions of the work environment.
3. Provide protection for workers in carrying out work from possible harm caused by those factors that endanger health.
4. Placing and maintaining workers in a work environment that is according to the physical and psychological abilities of the workers.

According to Cecep and Mitha (2013: 93), occupational safety and health has several objectives, including:

1. Maintaining a healthy work environment
2. Prevent and treat accidents caused by work while working.
3. Prevent and treat poisoning caused by work.
4. Maintaining morale, preventing and treating poisoning arising from work.
5. Matching abilities with work.
6. Rehabilitate workers who are injured or sick as a result of work.

It was concluded from several opinions of the experts above regarding the purpose of Occupational safety and health (OHS) to ensure the production process runs maximum by prioritizing the safety and health of workers and production equipment is protected from damage so as to reduce or eliminate the risk of loss, damage, or work accidents.

### **2.1.3 Hazard and Operability Analysis (HAZOP)**

#### **A. HAZOP Definition**

According to Juniani (2008), Hazard and Operability are technical standards hazard analysis used in the preparation of internal safety determinations of a new or modified

system for an existing hazard or its operability. HAZOP is a systematic hazard identification method thorough and structured to identify the various problems that arise that disrupt the course of the process and the risks contained in an equipment that may pose a risk of harm to humans/facilities in the system. This method is used as a preventive measure so that the process takes place in a system that can run effectively and safely.

According to Munawir (2010), HAZOP comes from the word “Hazard” which means physical conditions that have the potential to cause harm, accidents, to humans and or damage to tools, environment or buildings; and operability studies that means some part of the existing operating condition and designed however possibly could cause a shutdown/cause a series of incidents that detrimental to the company. Explanations about HAZOP from some of the experts above can be concluded that HAZOP is an operational method for tackling sources of danger that can occur in the workplace, starting from analysis, and identification, as well as recommendations or solutions to avoid and deal with existing hazards, as well as to identify and prevent them from accidents that may occur from accidents that are classified as mild to serious accidents and eliminate work days and harm parties workers and companies.

#### B. HAZOP Usage Objectives

HAZOP is used as a method for systematically reviewing a process or operation of a system to determine whether process deviations can lead to unwanted events or accidents. HAZOP systematically identifies every possible deviation from the predetermined operating conditions of a plant, looks for various causal factors that allow the occurrence of these abnormal conditions, and determines the adverse consequences of the occurrence of deviations and provides recommendations or actions that can be taken to reduce the impact of the potential identified risks (Munawir, 2010).

According to Juniani (2008), the purpose of using HAZOP is to systematically review a process or operation of a system, to determine whether a deviation process can lead to unwanted events or accidents. The results of the explanations from some of the experts above can be concluded that the purpose of HAZOP is a method used with the aim of reviewing a process or operation in a work system systematically and to identify irregularities that occur that can lead to unwanted things such as work accidents.

### C. Type of HAZOP

Hazard and Operability are defined into several types as follows:

1. HAZOP is a process technique developed to assess equipment and machines in a factory production process system.
2. Human HAZOP is a technique that focuses more on assessing human errors than technical failures.
3. HAZOP is a procedure technique that is used more to reassess a work procedure or series of operations and is sometimes characterized as a safe operation study (SAFOP).
4. HAZOP software is a technique used to identify possible errors in software development.

#### **2.1.4 Hazard**

##### A. Hazard Definition

According to Ramli (2010: 57), danger is everything including situations or actions that have the potential to cause accidents or injuries to humans, damage or other disturbances. According to Herman (2016: 25), Hazard or danger can be defined as a condition that creates a chance of loss from a particular disaster. According to John Ridley (2006: 46), hazard or danger is something that has the potential to cause loss or injury.

According to Tranter (Rico, 2015: 9), Hazard or danger is defined as the potential for a series of events to appear and cause damage or loss. If one part of the chain of events is missing, the event will not occur. Therefore, hazards will appear everywhere, both in the workplace and in the work environment, but hazards will have an effect if contact or exposure occurs.

Based on OHSAS 18001 (2007), hazard is a source, situation or action that has the potential to cause human injury or illness or a combination of all. Based on ILO (2009), potential hazard is an event that is dangerous and the chance of that event occurring. Based on the explanation above, it can be concluded that potential hazards or hazards are potential sources or situations that can cause negative and detrimental effects that can threaten the health and safety of workers.

## B. Type of Hazard

According to Ramli (2010), in space or at work, some factors that cause work-related illness or potential dangers may exist, including:

1. Physical Group
  - a. Voice, which can cause deafness.
  - b. Radioactive rays, which cause among other diseases of the blood system and skin disorders. Infrared radiation can cause cataracts in the lens of the eye, while ultraviolet light causes photoelectric conjunctivitis.
  - c. Temperatures that are too high cause heat-stroke, heat cramps or hyperpyrexia, while low temperatures, among other things, cause frostbite.
  - d. High pressure causes caisson disease.
  - e. Poor lighting, for example, causes abnormalities in the sense of sight or glare which makes it easier for accidents to occur.
2. Chemical Group
  - a. Dust that causes pneumoconiosis, including: asbestosis and others.
  - b. Vapors which among other things cause metal fume fever, dermatitis or poisoning.
  - c. Gas, for example poisoning by CO, H<sub>2</sub>S and others.
  - d. Solutions, which for example cause dermatitis.
  - e. Clouds or fog, for example insecticides, poisons and others that cause poisoning.
3. Infection group, for example by anthrax or brucella germs in leather tanning workers.
4. Physiological group, which is caused by machine construction errors, poor body posture, wrong way of doing work, etc.
5. Mental-psychological groups, this can be seen, for example, in bad work relationships, or for example, monotonous boring conditions.

According to Ramli (2010:65), the types of hazards can be classified as following:

### 1. Mechanical Hazard

Mechanical hazard originates from mechanical equipment or moving objects with mechanical forces, either manually or with an actuator. For example, grinding machine, lathe, cutting, press, forging, stirrer, and others.

### 2. Electrical Hazard



Electrical hazard is a source of danger that comes from electrical energy. Electrical energy can cause various hazards such as fire, electric shock, and short circuit. There are many electrical hazards in the environment around the workplace, both from the electrical network, as well as work equipment or those that use electrical energy.

### 3. Physical Hazard

Hazards originating from physical factors, namely noise, pressure, vibration, hot or cold temperatures, light or lighting, and radiation from radioactive materials.

### 4. Biological Hazard

In several work environments there are hazards originating from biological elements such as flora and fauna found in the work environment. This potential hazard is found in the food, pharmaceutical, agricultural and chemical, mining, oil and gas industries.

### 5. Chemical Hazard

Chemicals contain various potential hazards according to their nature and content. Many accidents occur due to chemical hazards such as poisoning, irritation, fire, and pollution or environmental contamination.

According to Soedirman (2011: 9), the types of hazard factors that can exposure to labor is:

#### 1. Chemical hazard

Chemical hazard factors are gas, vapor, dust, fume, mist, smoke, fog and smog.

#### 2. Physical hazard

Physical hazard factors include: heat, noise, vibration, insufficient lighting, radioactive electromagnetic waves such as microwaves, lasers, radar, radio waves, ultra violet rays, and infrared rays.

#### 3. Biological hazard

Biological hazard factors include: viruses, vaccines, fungi, amoebas, bacteria, and bacilli.

#### 4. Mechanical hazard

Mechanical hazard factors include rotating or moving parts without machine guards, pressure vessels without safety valves, and boilers without safety valves.

5. Workplace/work equipment Hazard

Work/work tool hazard factors include: work tools that are not in accordance with the nature, characteristics and anthropometric size of the workforce or are not ergonomic.

6. Psychological or psychiatric hazard

Psychological or psychiatric hazard factors include: the relationship between superiors and subordinates and between colleagues is not compatible so stress and mental tension arise.

C. Hazard in Workshop

Potential hazards or hazards in workshops are mostly found in production units or practical workshops used by workers. According to Putut Hargiyanto (2011: 207) there are nine (9) potential hazards in workshops, including:

1. Material Handling

Marking of transportation routes in a workshop is the first and main step in maintaining worker safety and health, however, as many workshops know/ most of the development is in stages, where the addition of facilities for practice is not matched by the addition and arrangement of workshop/laboratory layouts, meaning that the area of the workshop does not meet the needs of existing equipment/facilities. This causes the placement of facilities tends to make space and sacrifices safe space for workers and it is very difficult to make transportation marker.

2. Use of Hand Tools

Improper use of hand tools can result in hands being scratched, punctured, slashed, cut and others. Even though it seems trivial in the form of hand tools, due to the relatively large risk of danger, management becomes an absolute requirement that must be observed, especially since the frequency of use of hand tools is still quite dominant in work in the workshop.

### 3. Machine Protection Machines

Without protection, they have the potential to cause work accidents such as, hands caught by moving machines, exposed to fragments of production materials, hair pulled by moving machines and so on. Machine protection, in addition to avoiding machine damage, is also for worker safety. Use of emergency switches, different switches, and the correct sequence of switches can reduce the risk of machine damage. The use of warning signs that are easy to understand and easy to observe, the use of jigs and fixtures, machine protection, machine maintenance and protection and safety training can prevent workers from work accidents due to machine operation.

### 4. Workplace Design

Many of the workshops that have been developed depart from minimal conditions and little by little managers are able to add work tool facilities, but this has not been balanced with adjustments to work comfort, where tables, chairs and rooms that do not fit are often used. certain type of work. For example, the chair is not high enough, the desk is not level, the computer desk is not ergonomic and so on.

### 5. Lighting

Most workshops/laboratories have optimized natural lighting; however, certain things/works require adequate local lighting, this can be obtained by adding local lighting and not relying solely on local lighting. Lighting that is too bright can make your eyes hurt, but lighting that is too dim also makes your eyes tired quickly. Therefore, it is necessary to plan the right lighting according to the work done in that place.

### 6. Working Weather

Cases of working weather settings that often arise are due to hot natural tropical weather, where the workshop has not been able to provide additional air conditioning devices in the form of suction blowers, air conditioners, and maintenance procedures. Hot, stuffy and stuffy atmosphere makes workers feel uncomfortable so that their productivity will decrease. In addition, dirty air

resulting from the production process will be difficult to escape and endanger the respiratory system of workers.

7. **Control of Noise, Vibration and Electrical Hazards** Noise and Vibration Hazards come from the operation of machines, usually due to the machines being old and worn out causing a lot of noise and vibration. An electrical hazard occurs if the installation of the machine and electric power is not good or not according to standards.
8. **Worker Facilities**  
There are potential hazards in worker facilities such as the adequacy and cleanliness of MCK, and the availability of sufficient PPE for managers and workers. MCK is a source of germs or disease if not cared for properly and will interfere with the health of workers. Inadequate PPE equipment also increases the risk of getting a work accident ranging from minor injuries to death.
9. **Work Organization**  
Managers and workers must be able to work together to create effective and efficient workshop/laboratory governance. The problem that often arises is communication and involvement of all parties in an egalitarian manner towards comfortable, safe and secure workshop conditions.

### **2.1.5 6S**

#### **A. Definition of 6S**

Efforts to increase productivity and efficiency are activities that never end for many companies (Shinde, 2014). This 5S technique has received great attention in industrial companies and has had a lot of influence in reducing waste and defects, increasing productivity and efficiency, thereby eliminating workplace hazards and accidents (Sweta, 2014). Therefore, the 6S methodology is an extension of the 5S designed to reduce waste and optimize workplace productivity to eliminate defects and reduce the number of accidents. 6S is a simple technique that aims to achieve a clean, neat, hygienic and comfortable work environment for employees.

#### **B. Purpose and Benefits of 6S**

The goals in implementing the 6S work culture are as follows (Osada, 2004):

1. Security

Security in the work area is very important in the work area. Maintained security in the work area can reduce work accidents, for example the work equipment used is neatly arranged and does not disturb the work area. In addition, the application of the 5S work culture is very important in maintaining personal safety and for everyone involved in preventing things that can endanger health. Accidents will be less for companies that implement 5S work culture compared to companies that do not.

2. Efficiency

Creating time and cost efficiency when implementing the 5S work culture. Equipment is ready when needed, so this can speed up the production process and save time.

3. Quality

Product quality is not good in the production process due to jammed machines. The jammed machine occurs because the machine is not clean enough so that there is a jam on the machine operator and hinders the process on the production floor. If you have implemented a 5S work culture in a company or factory, the equipment and machines will always be kept clean so as to improve the quality of the products produced.

4. The main goal of occupational safety and health is to be able to produce a clean, healthy and productive workforce. So that the application of 5S + Safety (S) can improve employee performance and reduce work accidents in the work area.

Benefits that can be obtained by both individuals and companies after the implementation of 6S:

1. Individual

The environment in the work area is safer, makes workers feel happy because the workplace is comfortable and gets satisfying results and the process runs faster.

2. Companies

Produce higher quality, lower costs and make customers more confident with the product.

## CHAPTER III METODOLOGI PENELITIAN

### 3.1 Framework

Table 3.1 Framework

		Framework	
	for Activity	Tools	Results
Stage 1	Planning	<ul style="list-style-type: none"> <li>- Determining research objectives</li> <li>- Literature study</li> <li>- Problem identification</li> <li>- Theoretical basis and data collection methods</li> </ul>	- Proposal
Stage 2	Data Collection	<ul style="list-style-type: none"> <li>- Literature study (books, journals, previous research)</li> <li>- Interview</li> <li>- Observation</li> </ul>	<ul style="list-style-type: none"> <li>- Literature study</li> <li>- Interview data -</li> <li>- Observation data</li> </ul>
Stage 3	Analysis	<ul style="list-style-type: none"> <li>- Analyzing the location of the research object</li> <li>- Formulating problems using the HAZOP method</li> <li>- Planning proposals for solutions using the 6S method</li> </ul>	- Data on the location of research objects
Stage 4	Testing and Implementation	<ul style="list-style-type: none"> <li>- Implementation of the 6S method (floor demarcation, rearrangement of work tools according to the 6S method)</li> <li>- Direct observation for 2 weeks</li> </ul>	- Work on planning using the 6S method
Stage 5	Documentation	<ul style="list-style-type: none"> <li>- Taking photos</li> <li>- Data and descriptive analysis</li> </ul>	- Final project report

#### 3.1.1 Planning

The planning stages in this study have three stages, such as:

1. Determine research purposes.

This stage is the determination of the goals of the Final Project, so that the goals in writing are more focused where the author aims to build a K3 System in

Saztro\_Works MSME with the 6S Method. This will build a safe and comfortable work environment, thereby minimizing risks to work activities that may occur.

## 2. Literature study

This activity allows the author to continue writing in this final report. Because, by doing a literature study, the author gets information to support writing related to the topic raised.

## 3. Identification of the problem

Out problem identification to find problems in providing information on practical work locations and monitoring the location and environment of the research object.

### **3.1.2 Data Collection**

Determining the required data carries literature study by reading books including:

#### i. Books and journals

In this stage the author looks for references based on books and journals related to the object of research.

#### ii. Interview

At this stage the author conducts interviews with the owner of Saztro\_Works.

#### iii. Observation

In this stage the author conducts direct research in the field to understand the process of providing information as a form of solution from observing and collecting problems on research objects.

### **3.1.3 Analysis Stage**

#### a. Analysis of the ongoing system

This activity is an explanation of the system for providing information on research objects and environmental monitoring and work systems that exist in research objects.

#### b. Analysis of the Mapping Information System Concept of Job Training Locations



This analysis is needed in making the Final Project report, because in this report later the OHS System in Saztro\_Works MSME using the 6S Method. Therefore, an understanding of the system must be done correctly so that the results of the analysis are maximized.

c. Analysis of the proposed system

This activity is to provide a proposed system of problems that occurred during the use of the old system.

### **3.1.4 Testing and Implementation**

1. 6S Method

a. Security

Security in the work area is very important in the work area. Maintained security in the work area can reduce work accidents, for example the work equipment used is neatly arranged and does not disturb the work area. In addition, the application of the 5S work culture is very important in maintaining personal safety and for everyone involved in preventing things that can endanger health. Accidents will be less for companies that implement 5S work culture compared to companies that do not.

b. Efficiency

Creating time and cost efficiency when implementing the 5S work culture. Equipment is ready when needed, so this can speed up the production process and save time.

c. Quality

Product quality is not good in the production process due to jammed machines. The jammed machine occurs because the machine is not clean enough so that there is a jam on the machine operator and hinders the process on the production floor. If you have implemented a 5S work culture in a company or factory, the equipment and machines will always be kept clean so as to improve the quality of the products produced.

- d. The main goal of occupational safety and health is to be able to produce a clean, healthy and productive workforce. So that the application of 5S + Safety can improve employee performance and reduce work accidents in the work area.

### **3.2 Research Locations**

Saztro\_Works Saztro\_Works is an MSME workshop on Jl. Rear Admiral Adisucipto

### **3.3 Research Object**

This object for research is in the modification, restoration, welding and motor paint workshop, namely Saztro\_Works. Saztro\_Works is an MSME workshop on Jl. Laksda Adisucipto with the owner's name Aribowo Sastro.

### **3.4 Types and Sources**

#### **3.4.1 Data Primary**

Primary data is the main data obtained from several general documentation, such as interviews, observations and data from Saztro\_Works as the object of research. The primary data used in this study are as follows:

- a. Interview documents, namely interviews with the owner of Saztro\_Works, Aribowo Sastro.
- b. Book documents, namely with OHS guidelines, HAZOP and 6S guidelines.
- c. The location data document for the research object is the location plan for the research object, namely the Saztro\_Works workshop.

#### **3.4.2 Secondary**

Secondary data, namely in the form of documents and written reports available at the Faculty of Industrial Engineering as well as other information that has to do with problems that are aligned with the theme of this research.

## **CHAPTER IV DISCUSSION**

### **4.1 Data Profile of Object**

Object research is one of the MSME industries that requires a high level of work area security, one of which is a workshop. In this study, there are MSME in the modification, restoration exterior, welding and motor paint workshop, namely Sastro\_Works. Sastro\_Works is an MSME workshop on Jl. Rear Admiral Adisucipto with the owner's name Aribowo Sastro.

#### **4.1.1 Sastro\_Workz Workshop Section:**

1. Spray Booth Room

Spray Booth is a room used for painting and polishing motorcycle and car parts. Inside the spray booth there is 1 air compressor, 1 unit of Spray Gun, 4 types of chemicals for the painting process.

2. Equipment & Micro Room

Equipment & Micro Room is a room for storing work equipment and goods that are ready for production. The equipment contained in the Equipment & Micro Room consists of 3 major parts, namely production preparation tools, production activity tools and finishing tools.

3. Working Room

The working room is a fairly large work area for sanding, welding, and puttying of motorbikes and cars. Therefore in this area there are sanding, welding and putty tools.

#### **4.1.2 Work Accident Data**

Sastro\_Workz, which was founded in 2017, has had a lot of work accident experience, due to work areas that do not have good and correct SOPs, these include:

1. Area Spray Booth

During Sastro\_Workz experienced several work accidents, especially in the spray booth area. After conducting interviews with the owner of the Sastro\_Workz workshop, there were 3 work accidents that belong to the Chemical Group, including: There was a work accident in the operator in the form of nausea, dizziness and vomiting due to dust spray and the smell of paint chemicals from the results of activities in the spray-booth room. In addition, because the Sastro Workz workshop is in the same neighborhood as a residence, dust spray leaks often occur from activities in the spray-booth room that enter the owner's residential home, thus disturbing the comfort of the family including the children in it. The last accident experienced by workers at Sastro\_Workz was skin irritation to the operator and also the owner due to the insufficient exhaust fan in the Spray-booth room.

## 2. Equipment & Micro Working Room

Apart from the spray booth area, work accidents occurred in the Equipment & Micro Working Room, the Equipment & Micro Working Room is a work area that is often used, because the Equipment & Micro Working Room is the main work area. In the Equipment & Micro Working Room, 4 main accidents occurred in the Equipment & Micro Working Room, including:

- a. There was an incident of work accident to the operator in the form of the operator's finger being injured due to scratches from scrap metal scrap production
- b. Barriers to time in work due to the condition of the tools in the room are not neat and messy
- c. There was an incident of skin irritation on the operator's arm because the items in the room were not kept clean and rusted
- d. There were incidents of work accidents on the feet, hands and face of the operator due to the placement of items that were not in place, causing scratches on the operator's body

## 3. Working Space

Working space is In the working space, prior to spatial planning, work accidents often occur, including:

- a. There was an incident where the operator's arm was injured due to the debris left over from production that was not disposed of in its place, thus injuring the operator
- b. Obstacles occur at the time of production because the goods and equipment used for production are not well organized
- c. There was an incident of work accident on the operator's leg due to the placement of items that were not in place, causing scratches on the operator's body

## **CHAPTER V**

### **DISCUSSION**

After collecting data, observing and interviewing there are MSME in the modification, restoration, welding and motor paint workshop, namely Saztro\_Works. Saztro\_Works is an MSME workshop on Jl. Rear Admiral Adisucipto with the owner's name Aribowo Sastro in the previous chapter, this chapter will discuss and analyze the data using the HAZOP method, The Standard Australia/New Zealand (AS/NZS 4360:2004), and the 6S theory.

#### **5.1 Results of Data Analysis Using the HAZOP Method**

This analysis will use the Likelihood method, because Likelihood is the degree of frequency with which a risk or hazard occurs within a certain timeframe. After knowing the Likelihood, the risk level of the Sastro\_Workz work area can be calculated. Before calculating the level of risk of work accidents, it is necessary to calculate the Likelihood value using The Standard Australia/New Zealand (AS/NZS 4360:2004). Australian / New Zealand Risk Management Standards AS/NZS 4360 : 2004 The main components of the risk management process, the authors chose this standard because it includes:

- **Communication and consulting**  
Communication and consultation with appropriate internal and external stakeholders at each stage of the risk management process and the process as a whole.
- **Context setting**  
Determination of the external context, internal context and risk management context in which the risk management process will be applied. The criteria used when the risks are to be evaluated should be developed and the structure of the analysis defined.
- **Risk identification**

Identify where, when, why and how events can prevent, decrease, delay or enhance goal attainment.

- Risk analysis

Identification and evaluation of existing controls. Determine consequences and likelihood and level of risk. This analysis should consider the range of potential consequences and how the risk might occur.

- Risk evaluation

Compares the estimated level of risk with pre-established criteria and considers the balance between potential benefits and unfavorable outcomes. The result is a decision to determine the extent and nature of the required risk treatment and determine risk priorities.

- Risk management

Develop and implement specific effective and efficient strategies and action plans to increase potential benefits and reduce potential costs.

- Monitor and review

- It is important to monitor the effectiveness of all stages of the risk management process. This is essential for continuous improvement. Risks and the effectiveness of risk treatment need to be monitored to ensure that changing situations do not change risk priorities.

Parameter consequence indicates the level of impact hazard caused by the risk of deviation from the desired state or out of control operations. Based on the standard Australia/New Zealand (AS/NZS 4360:2004), the level of Consequences can be determined based on several tables of Consequences criteria as shown in the following:

Table 5.1 Table Consequences (The Standard Australia/New Zealand (AS/NZS 4360:2004))

<i>Level</i>	<i>Descriptor</i>	<i>Description</i>

1	Insignificant	The system operates & is safe, there are a few insignificant disturbances
2	Minor	The system remains operational & safe, disturbances result in a slight decrease in performance or disrupted system performance
3	Moderate	The system can operate, failure can cause the machine to lose its main function and/ can cause product failure
4	Major	System cannot operate. Failure can cause a lot of physical & system damage, can result in product failure, and/ does not meet the requirements of Occupational Safety regulations
5	Catastrophic	Work Safety regulations

Likelihood is an opportunity for the risk of danger to the components. Based on the standard Australia/New Zealand (AS/NZS 4360:2004), the level of likelihood can be determined based on the criteria as shown in the following table,

Table 5.2 Table Likelihood (The Standard Australia/New Zealand (AS/NZS 4360:2004))

<i>Level</i>	<i>Description</i>	<i>Description</i>
A	Almost Certain	Risk occurs more than 5 times in 5 years
B	Likely	Risk occurs 4-5 times in 5 years



C	Moderate	Risk occurs more than 3 or less than 4 in 5 years
D	Unlikely	Risk occurs 2-3 times in 5 years
E	Rare	Risk rarely occurs once/occurs

Based on Equation (2.1), the risk value is the multiplication of the likelihood and consequences, so a risk criteria matrix will be obtained as shown in the following table,

Table 5.3 Risk Matrix Table (The Standard Australia/New Zealand (AS/NZS 4360:2004))

<i>probability</i>	Consequences				
	Insignifican t	Minor	Moderat e	Majo r	Catastroph ic
	1	2	3	4	5
A (Almost certain)	H	H	E	E	E
B (Likely)	M	H	H	E	E
C (Moderate)	L	M	H	E	E
D (Unlikely)	L	L	M	H	E
E (Rare)	L	L	M	H	H

### **5.1.1 Spray Booth Room**

The Spray Booth Room, which is a work space for workers to do the painting, has an air compressor unit, a spray gun unit, four types of chemical liquids for paint materials. The equipment in the spray booth room is quite complete, because it does not require equipment from outside the room, therefore according to the Consequences Table (The Standard Australia/New Zealand (AS/NZS 4360:2004) the spray booth room can be categorized as a level 2 work area namely Minor, because The system remains operational & safe, disturbances result in a slight decrease in performance or disrupted system performance.

Meanwhile, in the spray booth room at Sastro\_Workz for 5 years of existence, there were 3 work accidents which could be categorized as physical groups (Ramli, 2010). These accidents included, There was a work accident on the operator in the form of nausea, dizziness and vomiting due to dust spray and the smell of paint chemicals from the results of activities in the spray-booth room. In addition, because the Sastro Workz workshop is in the same neighborhood as a residence, dust spray leaks often occur from activities in the spray-booth room that enter the owner's residential home, thus disturbing the comfort of the family including the children in it. The last accident experienced by workers at Sastro\_Workz was skin irritation to the operator and also the owner due to the insufficient exhaust fan in the Spray-booth room.

If seen according to the Risk Matrix Table (The Standard Australia/New Zealand (AS/NZS 4360:2004), spray booth rooms can be categorized as category D, namely Unlikely. This shows that spray booth rooms are included in the category of work spaces that have a low risk in a work accident.

### **5.1.2 Equipment & Micro Room**

Equipment & Micro Room Room which is a work room for workers doing painting, there are pre-work equipment, work equipment and post-work (finishing) equipment. The equipment in the Equipment & Micro Room room is quite complete, because it does not require equipment from outside the room, therefore according to the Consequences Table

(The Standard Australia/New Zealand (AS/NZS 4360:2004) the Equipment & Micro Room can be categorized as the level 2 work area is Minor, because The system remains operational & safe, disturbances result in a slight decrease in performance or disrupted system performance.

Meanwhile in the Equipment & Micro Room room which has been in Sastro\_Workz for 5 years, there have been 4 work accidents which can be categorized as a physical group category because Poor lighting, for example, causes abnormalities in the sense of sight or glare which makes it easier for accidents to occur and Physiological group caused by machine construction errors, poor body posture, wrong way of doing work, etc. (Ramli, 2010).

These accidents included, There was an incident of work accident to the operator in the form of the operator's fingers being injured due to scratches from scrap metal scrap production. In addition, there were time constraints in working because the condition of the tools in the room were not neat and messy. There was an incident of skin irritation on the operator's arm because the items in the room were not kept clean and rusted. The last work accident, there was an incident of work accident on the operator's feet, hands and face due to the placement of items that were not in their place, causing scratches on the operator's body.

If seen according to the Risk Matrix Table (The Standard Australia/New Zealand (AS/NZS 4360:2004), Equipment & Micro Room room can be categorized as category C, namely Moderate. This shows that Equipment & Micro Room room is included in the work space category who are at moderate risk of work accidents.

### **5.1.3 Working Room**

Working room Room which is a work room for workers to do the painting, there is a unit of sanding tools, a unit of putty tools, a unit of welding tools. The equipment in the working room is quite complete, because it does not require equipment from outside the room, therefore according to the Consequences Table (The Standard Australia/New Zealand (AS/NZS 4360:2004) the working room can be categorized as a level 2 work

area namely Minor, because The system remains operational & safe, disturbances result in a slight decrease in performance or disrupted system performance.

Meanwhile in the working room at Sastro\_Workz for 5 years of existence, there were 3 work accidents which could be categorized as a physical group category (Ramli, 2010). These accidents included incidents where the operator's arm was injured due to debris left over from production that was not disposed of in its place resulting in injury to the operator. There were delays during production because the goods and equipment used for production were not properly arranged. Incidents of work accidents occurred. on the operator's feet caused by placing items that are not in place, causing scratches on the operator's body.

If seen according to the Risk Matrix Table (The Standard Australia/New Zealand (AS/NZS 4360:2004), working room rooms can be categorized as category D, namely Unlikely. This shows that working room rooms are included in the category of work spaces that have low risk in a work accident.

## **5.2 Solution Based On 6S Theory**

The 6S methodology is an extension of the 5S designed to reduce waste and optimize workplace productivity to eliminate defects and reduce the number of accidents. 6S is a simple technique that aims to achieve a clean, neat, hygienic and comfortable work environment for employees. Based on the analysis of the data, the research will identify the strengths and best practices of the current OHS system within Sastro\_Works MSME. These can serve as examples to be replicated or expanded upon. Additionally, any weaknesses, gaps, or non-compliance areas will be identified, highlighting areas that require immediate attention and improvement.

Drawing on the principles of the 6S methodology, potential solutions and recommendations will be developed to address the identified weaknesses. This may involve proposing changes in workplace layout, implementing standard operating procedures, enhancing employee training programs, introducing safety audits and inspections, or improving communication and reporting mechanisms. The proposed solutions will be based on the principles of "sort, set in order, shine, standardize, sustain,

and safety" of the 6S theory. These principles will guide the development of practical and feasible recommendations that align with the specific needs and limitations of Saztro\_Works MSME.

Finally, the analysis section will conclude by summarizing the key findings, strengths, weaknesses, and proposed solutions. The insights gained from this analysis will inform the subsequent stages of the research, such as the development of an action plan for implementing the recommended OHS improvements and evaluating their effectiveness. Overall, the analysis section of the research will provide a comprehensive assessment of the current OHS practices within Saztro\_Works MSME, identify areas of improvement, and propose practical solutions based on the principles of the 6S theory.

This analysis will serve as a foundation for promoting a safer and healthier work environment and enhancing the overall OHS performance of the organization.

### **5.2.1 Spray Booth Room**

#### **a. Sort**

After making observations at the research location for three weeks, the researcher has done the following for MSME owners,

- Move tools such as spray-guns and air compressors to the space provided after demarcating the floor
- Move production chemicals into the available floor demarcation

#### **b. Set in Order**

Several tools and materials for production activities have been categorized as follows,

- Create categories of chemicals into one place and label them according to their names
- Make a category of production equipment such as spray-guns and air compressors

#### **c. Shine**

During the 3 weeks of observation at the research location, the researcher and the owner cleaned the Spray-booth location as follows,

- Clean the floors and walls of the spray location to minimize dust
- Cleaning the exhaust vents located at the work location to make it more effective in absorbing dust-spray
- Cleaning and tidying up tools and material containers in the work location

d. Standardize

Researchers and MSME owners have implemented the following standards,

- Prepare safety Protective Personal Equipment (PPE) such as using gloves, respirator masks, and safety glasses before starting work
- Close the dust-spray barrier mosquito net first
- Turn on the air compressor to the optimal pressure before finally using it
- Clean the nozzles and paint containers on the spray gun before use

e. Sustain

During the observation at the research location, the owner has disciplined the workers as follows,

- Starting work using Personal Protective Equipment (PPE) in accordance with the work to be performed
- Put back production tools and materials at the place where the goods were taken
- Turn off the tools that use electric power
- Cleaning all members of the body after finishing work

f. Safety

After observing at the study site for three weeks, the owner has made the following PPE supplies,

- Provide gloves
- Provide respirator masks
- Provide safety glasses

### 5.2.2 Equipment & Micro Working Room

#### a. Sort

After making observations at the research location for three weeks, the researcher has done the following for MSME owners,

- Move tools such as grinding machines, sanding machines, iron cutting machines and other small equipment such as screwdrivers, wrenches, etc. in the space provided after demarcating the floor
- Move production chemicals into the available floor demarcation

#### b. Set in Order

Several tools and materials for production activities have been categorized as follows,

- Make categories of small equipment, large equipment and equipment that uses electric power into the floor demarcation area that has been provided
- Create categories of production equipment such as large equipment, small equipment and equipment that uses electric power

#### c. Shine

During the three weeks of observation at the research location, the researcher and the owner cleaned the Spray-booth location as follows,

- Clean the floors and walls of the equipment location to minimize dust and dirt
- Cleaning production equipment on site
- Cleaning and tidying up production equipment

#### d. Standardize

Researchers and MSME owners have implemented the following standards,

- Prepare safety Protective Personal Equipment (PPE) such as using gloves and safety glasses before starting work
- Take equipment that will be used correctly and neatly
- Laying cables for equipment that uses electric power properly and placed in the space provided

- Returns used equipment to its place
- Tidy up cables and immediately turn off the electric power for equipment that uses electric power

e. Sustain

During the observation at the research location, the owner has disciplined the workers as follows,

- Starting work using Personal Protective Equipment (PPE) in accordance with the work to be performed
- Put back the equipment that has been used in the place where the item was taken
- Turn off the tools that use electric power
- Cleaning all members of the body after finishing work

f. Safety

After observing at the research location for three weeks, the owner has made the following Protective Personal Equipment (PPE) supplies,

- Provide gloves
- Provide safety glasses
- Provide a first aid kit

### 5.2.3 Working Room

a. Sort

After making observations at the research location for three weeks, the researcher has done the following for MSME owners,

- Move equipment and production materials for welding machines and putty to the space provided after demarcating the floor
- Doing work on the floor demarcation that has been provided
- Move unused items to the floor demarcation provided

b. Set in Order



Several tools and materials for production activities have been categorized as follows,

- Make categories of small equipment, large equipment and equipment that uses electric power into the floor demarcation area that has been provided
- Create categories of production equipment such as large equipment, small equipment and equipment that uses electric power

c. Shine

During the three weeks of observation at the research location, the researcher and the owner cleaned the Spray-booth location as follows,

- Clean the floor and the location of the equipment to minimize dust and dirt
- Cleaning production equipment on site
- Cleaning and tidying up production equipment
- Dispose of work materials that are no longer used in the floor demarcation area provided

d. Standardize

Researchers and MSME owners have implemented the following standards,

- Prepare safety Protective Personal Equipment (PPE) such as using gloves and safety glasses before starting work
- Take the equipment that will be used properly and place it in the place of the tools and materials that have been prepared
- Laying cables for equipment that uses electric power properly and placed in the space provided
- Return equipment and materials that have been used to their place
- Tidy up cables and immediately turn off the electric power for equipment that uses electric power

e. Sustain

During the observation at the research location, the owner has disciplined the workers as follows,

- Starting work using Personal Protective Equipment (PPE) in accordance with the work to be performed
- Put back the equipment that has been used in the place where the item was taken
- Turn off the tools that use electric power
- Dispose of leftover production materials that are no longer used in the provided floor demarcation area
- Clean all members of the body after finishing work

f. Safety

After observing the research location for three weeks, the owner has made the PPE inventory as follows,

- Provide gloves
- Provide safety glasses
- Provide a first aid kit

## **CHAPTER VI**

### **CONCLUSION AND SUGGESTION**

#### **6.1 Conclusion**

After conducting research, processing and analysis of data, the following conclusions can be drawn:

1. The safety on Sastro\_Workz environment before it was very low, that is in the value of 3-5 times in 5 years. If seen according to the Risk Matrix Table (The Standard Australia/New Zealand (AS/NZS 4360:2004), Equipment & Micro Room can be categorized as category C, namely Moderate. This shows that Equipment & Micro Room room is included in the work space category who are at moderate risk of work accidents.
2. All attributes of the workshop undergo a tidying process based on the 6s method. The 6S methodology is an extension of the 6S designed to reduce waste and optimize workplace productivity to eliminate defects and reduce the number of accidents. 6S is a simple technique that aims to achieve a clean, neat, hygienic and comfortable work environment for employees.

#### **6.2 Suggestion**

So, the suggestions that researchers can give are as follows:

1. To increase the security of the Sastro\_workz work environment, it is necessary to adhere to the 6s method and the SOP that has been built.
2. Companies are advised to continue to carry out periodic evaluations of company performance and service quality based on customer perceptions.
3. Suggestions that can be given to future researchers are to be able to utilize the results of this study for further research using other methods and other variables.

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