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Occupational Safety and Health (OSH) in Construction Projects in Ternate City

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Abstract. The importance of occupational safety and health (OHS) in the construction industry, especially in the construction project of the operating room at Dr.H. Chasan Boesoirie Ternate Hospital. This study used a questionnaire method and direct observation of respondents involved in the project. The results showed that the project had met occupational standards safety, but there was a need for improvement in the availability of flammable materials and evacuation routes. The company provides adequate PPE and health facilities. Prioritizing OHS in the project can avoid losses and prevent accidents, thus providing long-term benefits.

Keywords. Occupational Safety and Health, Construction Project, Standards Safety

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1 Introduction

The construction industry is one of the Industries most at risk for worker safety [1]. Construction service activities have been proven to contribute to development and economic growth in all countries in the world, including Indonesia, both held by the government and the private sector [2]. Thousands of accidents occur in the workplace yearly, resulting in fatalities, material damage, and production disruptions. In 2007, according to Social Security, there were 65,474 accidents resulting in 1,451 deaths, 5,326 permanent disabilities, and 58,697 injuries [3].

To prevent losses from construction projects, an OHS management system is needed that regulates and can become a reference for consultants, contractors and construction workers [4]. Construction projects in Ternate City also experience challenges and struggles in improving work safety standards. Efforts to ensure worker safety and health are the focus in addressing the risks associated with this project.

2 Research Methods

The data collection method used in this study includes two main approaches:

- Questionnaire Distribution: The researcher will develop a questionnaire about the research topic. This questionnaire will be distributed to respondents involved in construction projects in Ternate. The data obtained from the questionnaire will provide insight into workers' perceptions, attitudes, and knowledge about work safety and potential risks.
- Direct Observation: In addition to the questionnaire, the researcher will also make direct observations of ongoing development projects in Ternate City. By making these observations, researchers can identify field conditions in real-time, assess the level of compliance with safety procedures, and document the behavior and safety practices of workers in the field.

The research was conducted through a survey on the construction of the operating room at Dr.H. Chasan Boesoerie Ternate.

According to the Management of Health and Safety at Work, several factors that affect OSH include: a). Workplace b). Equipment c). Labor[5]. The questionnaire method is carried out using a questionnaire formula that the user will fill in to find out the user's opinion on the system used. This method provides evaluation results in the form of quantitative data, making it easier to process the data [6].

The measuring instrument used in this research is in the form of questions that are considered indicators of certain behaviors, such as knowledge or attitudes. Individuals who are respondents will answer the questions. Question items in this study follow the guidelines for a predetermined measurement scale. The most frequently used scale is the Likert scale. The Likert scale uses several questions to measure individual behavior by responding to 5 choices for each

question, namely strongly agree, agree, do not decide, disagree, and strongly disagree. [7].

3 Discussion

3.1 Management Of Health and Safety at Work

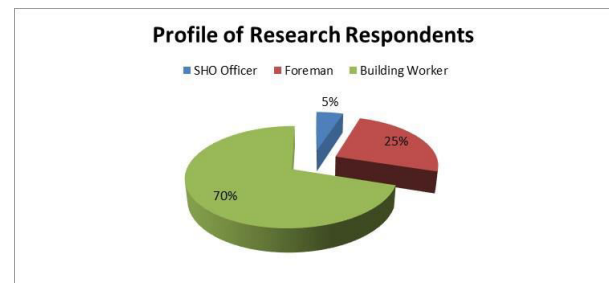
The Occupational Safety and Health (OSH) Management Questionnaire is designed to obtain information on various aspects related to occupational safety and health in the workplace. Some questions that can be included in the questionnaire include:

- Work Safety on the Project
- Fire control
- Public Protection
- Work Equipment and Clothing
- Occupational Health

The OSH evaluation component was developed based on the Occupational Safety and Health Practice Guidelines based on Occupational Safety and Health Management.

3.2 Questionnaire results

According to Nielsen, identifying problems carried out by more than five users will only repeat the same problem. Therefore, the researchers used 20 SHO officers, supervisors, and building workers samples.



[6].

Fig. 1. Profile of Research Respondents.

The following are the results of evaluating the application of SHO in the construction of the operating room project at Dr.H. Chasan Boesoerie Ternate:

Table 1. Work Safety on the Project

Statement	Résponden	Information
Every worker in the project can reach the workplace safely.	20	Strongle Agrée
Safety fences have been installed in open spaces within the project to prevent workers from falling.	20	Strongle Agrée
The project site has good lighting.	20	Strongle Agrée
Occupational safety signs/signs have been installed in certaine area of the project.	20	Strongle Agrée

Table 1 shows that respondents felt the project had met good safety standards, including providing safety fences, adequate lighting, and placement of safety signs. This indicates concern and commitment to safety in the project environment.

Work safety is an effort to ensure the condition, health, and welfare of the workforce (both physical and mental), as well as the results of their work and the equipment used in the workplace. These efforts must be made by all parties involved in the work process, including workers, supervisors/heads of work groups, companies, governments, and society. Without good cooperation from all these parties, the goal of work safety cannot be achieved optimally [8].

Table 2. fire control

Statement	Réponden	Information
Has imposed a smoking ban on the project area to avoid fires.	20	Strongle Agrée
Sufficient fire extinguishers are available	20	10 Strongle Agrée, 10 Agrée
limited combustible material	20	2 Strongle Agrée, 10 Agrée, 8 do not décide
A place has been provided for storing and disposing of flammable materials/items.	20	18 Strongle Agrée, 2 Agrée

The conclusion from the data shows that most respondents felt that fire prevention measures were well implemented in the project area. The existence of a smoking ban, the availability of adequate fire extinguishers, and the storage of flammable materials are positive steps to reduce the risk of fire in the project area. However, some respondents still have not decided on the limited availability of combustible materials, so more attention is needed in this regard.

Services in protecting workers in a project must be equipped with complete equipment to deal with the possibility of fire in the field. Therefore, the SOP for providing facilities and equipment for personal protective equipment for workers must always be available [9].

Table 3. Public Protection

Statement	Réponden	Information
Fences along with entrances and exits have been installed in good condition around the project site.	20	2 Strongle Agrée, 18 Agrée
Project signs/signs/information about the project have been installed around the project site.	20	Strongle Agrée
Installation of OSH signs, containing slogans reminding them of the need to work safely, etc.	20	16 Strongle Agrée, 4 Agrée

There are adequate evacuation routes as alternative routes in an emergency.	20	6 Strongle Agrée, 14 Agrée
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The conclusion from the data shows that most respondents were satisfied with the condition of facilities and signage around the project site. Fences, entrances, and exits were well in place, and project information was sufficiently available. In addition, the presence of OHS signs with slogans reminding us to work safely is a positive step in increasing safety awareness. Although most respondents felt that the evacuation routes were adequate, some disagreed, so further evaluation is needed to ensure the availability of adequate evacuation routes in emergency situations. Effective OHS planning involves identifying hazards, assessing risks, and determining controls. With proper planning, an OHS management system can run optimally. In the planning process, it is important to consider various OHS legislative requirements applicable to the organization as well as other requirements such as relevant standards, codes, or company guidelines applicable to the organization [10].

Table 4. Work Equipment and Clothing

Statement	Réponden	Information
The company provides work clothes, helmets, work clothes, boots, gloves, masks, safety belts, etc.	20	Strongle Agrée
All equipment is in good condition and can be used according to its function.	20	Strongle Agrée
The workers use equipment and work clothes when working.	20	Strongle Agrée
The company provides work safety equipment such as ladders, nets, fences, etc	20	4 Strongle Agrée, 16 Agrée

The conclusion from the data shows that the company has provided adequate work clothes and equipment that are in good condition for workers. This shows the company's commitment to work safety and workers' welfare. Most respondents also stated that workers use the work equipment and clothing provided. However, a few respondents strongly disagreed regarding the availability of safety equipment such as ladders, nets, and fences. Therefore, the company must further evaluate to ensure that all required safety equipment is adequately available to workers.

Using standardized occupational safety and health equipment on construction projects is essential and mandatory to protect individuals from potential accidents and hazards during construction. Prioritizing occupational health and safety is a top priority, so all contractor companies have the responsibility to provide all personal protective equipment (PPE) for all employees working on the project [11].

Table 5. Occupational Health

Statement	Résponden	Information
There are sufficient bathrooms and picket duty is imposed to clean the bathrooms.	20	Strongle Agrée
There is a break room and kitchen along with drinking water for workers.	20	Strongle Agrée
First aid kits are available for first aid workers.	20	6 Strongle Agrée, 14 Agree
Health checks of the employees before the project and regular health checks during the project implementation.	20	16 Strongle Agrée, 2 Agree, 2 do not decide
Provide insurance and cooperate with health centers or hospitals for workers.	20	Strongle Agrée

The conclusion from the data shows that the company has paid attention to the health and comfort aspects of the workers. There are adequate facilities such as bathrooms, restrooms, and kitchens with drinking water. Most respondents stated that health checks were given great attention before and during the project. Workers' health and safety aspect is also supported by the availability of first aid kits and insurance for workers. However, a small proportion of respondents did not decide on health checks during the project, so the company needs to improve communication and information regarding regular health checks for all workers.

The Occupational Safety and Health Control System aims to prevent, reduce, and even eliminate the risk of occupational accidents (zero accidents). This concept should not be considered only as a costly effort to prevent occupational accidents and occupational diseases but should be considered as a form of long-term investment that provides abundant benefits in the future [12].

4 Conclusion

Occupational safety and health in the construction industry must be prioritized. Every year, thousands of accidents occur in the workplace that cause loss of life, material damage, and production disruption. Therefore, a sound OHS management system is needed as a reference for consultants, contractors, and construction workers. This research was conducted at the operating room construction project at Dr.H. Chasan Boesoirie Ternate.

The research method used was questionnaire distribution and direct observation. The results showed

that most respondents felt the project had met good safety standards, including installing safety fences, adequate lighting, and safety signs. However, some respondents needed clarification about the availability of flammable materials and adequate evacuation routes.

In addition, the company has also provided sufficient safety equipment for workers, such as work clothes, helmets, gloves, masks, and other safety tools. However, improvements are still needed in the availability of safety equipment such as ladders, nets, and fences. The company has also paid attention to the health aspects of workers by providing facilities such as bathrooms, restrooms, and kitchens with drinking water. Health checks before and during the project are also given attention.

Occupational safety and health should be a top priority in all construction projects, and the contracting company is responsible for providing all personal protective equipment (PPE) to all employees working on the project. Thus, implementing good OHS management will provide long-term benefits and protect the safety and health of workers

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