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Implementation of The Management Systems on Safety and Health to Construction Workers

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Abstract: *The high number of work accidents in construction projects in Indonesia shows that the Occupational Safety and Health (OSH) problem has not been implemented optimally. The research was conducted at the Elevated Road Segment One Development Project (MYC) km 47 + 766 to km 51 + 249. The aims of this research is to know (1) implementation of health and safety management to construction workers, and (2) factors affecting implementation of safety and health management. This research is a kind of non experimental research and is descriptive. Sampling technique in this research using non-probability sampling technique. Data analysis techniques using Likert scale technique and simple linear regression method with SPSS program. The results of this research show the implementation of Elevated Road Segment One development project (MYC) has generally been running well, while the most influencing factors in improving OSH implementation are First Aid indicators, toilet indicators, waste handling indicators, rest area/shelter availability indicators, PPE indicators, worker barracks/indicators, and indicators Completeness of signs and banners.*

Keywords: *Safety, health, work, construction and MYC*

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I. INTRODUCTION

Law No. 13 in Year 2003 on employment explains the importance of protecting the safety and health of workers. The law is supported by Law No. 1 in Year 1970 concerning occupational safety. Law No. 1 in Year 1970 explains that the importance of safety of work either on land, in the soil, on the surface of water, in the water, in the air, and in the territory of the Republic of Indonesia. Implementation of Occupational Safety and Health (OSH) is implemented in the workplace using hazardous equipment, Toxic and Hazardous (TH) materials, construction work, building maintenance, landscaping and other occupational sectors identified as having a hazard. Occupational health and safety (OHS) issues of workers or laborers during construction projects are often under-paid by various parties, both government and contractors. Lack of awareness of the importance of Occupational Safety and Health (OHS) resulted in many serious and non-serious workplace accidents and deaths in the construction process annually. Work accidents that occur can hinder the construction process itself so that the purpose of Project Management is not achieved. Occupational Safety and Health (OHS) problems in Indonesia are generally neglected, as indicated by the high accident rate and low levels of corporate safety concerns. In 2011 there were 99,491 cases or an average per day of 414 occupational injuries. Problems about OHS is also happening the implementation of construction projects, even every year the average case of accidents occurred 32% of the total cases of work accidents that occurred in Indonesia. This figure is greater than other industrial sectors such as mining, manufacturing and others. Factors causing work accidents in a construction project include the behavioral factors of construction workers who tend to ignore the provisions of safety standards, the choice of work methods that are not appropriate, workplace changes, equipment used and the lack of discipline factor of the workforce in complying with the provisions about OHS which among others regulate about the use of personal protective equipment (Ervianto, 2005). Various factors causing the occurrence of work accidents as mentioned, indicates that accidents occur generally more caused by human error, both from the competence of the construction executives and understanding the importance of the implementation of Safety and Health (OHS), this is supported also with there are still many construction workers who ignore the provisions such as not wearing safety helmets, boot, belts, safety glasses, and so forth. This is what makes the authors want to examine more deeply about the implementation of occupational safety and health management systems to construction workers on the Elevated Road Segment 1 (MYC) km Development Project. 47 + 766 to Km 51 + 249. The project owner is Committing Officer 02 (Metropolitan Makassar 1) Metropolitan Makassar Metropolitan Road Working Unit 1.

II. METHODOLOGY

The type of this research is non experimental research and is descriptive. The population in this research as many as 100 workers who are casual workers. Sampling technique in this research using non-probability sampling technique. The number of samples was determined using the Slovin formula:

$$n = \frac{N}{1 + Ne^2} \quad \text{..... (1)}$$

Notes:

η : Number of Samples
N : Total population
e : Error tolerance

Based on the Slovin formula, the required sample with a population of 100 workers and a tolerance limit of 5% is 80 samples.

The data analysis used in this research is Likert scale technique (Sugiyono, 2007: 107), that is by giving certain standard value each answer. The standard values are listed in Table 1.

Table. 1. Standard Likert Scale Value

Answers	Values	Interpretation
A	5	Excellent
B	4	Good
C	3	Fair
D	2	Poor
E	1	Very poor

To determine the percentage of criteria used the formula as follows;

$$\frac{\sum S}{\sum f \times b_{max\ imal}} x\,100\ \% \quad \text{.....(2)}$$

Information:

Σ s is a questionnaire score
Σ f x b maximum is a criteria scores

At this writing, the criterion was used at least 20.00%, with the picture if the respondent chose all the answers with weight only 1, while the calculation is as follows;

$$= \frac{score\ \ kuesioner}{score\ \ kriteria} x\,100\ \%$$

$$= \frac{\sum S}{\sum f \times b_{max\ imal}} x\,100\ \%$$

$$= \frac{80}{400} x\,100\ \% = 20\,,00\ \%$$

While the criteria range of 16.00%, the range of these criteria the author obtained by way

$$= \frac{max\ \ imal\ \ \ Criterion\ \ \ - Minimal\ \ \ Criterion}{Class}$$

$$= \frac{100\ \% - 20\ \%}{5} = 16\,,00\ \%$$

So the criteria specified in this writing are as follows:

84,00% - 100% = Excellent
68,00% - 83,99% = Good
52,00% - 67,99% = Fair
36,00% - 51,99% = Poor
20,00% - 35,99% = Very Poor

To analyze the implementation factors of occupational safety and health management system using SPSS program of simple linear regression model.

III. DISCUSSION

Implementation Analysis of Occupational Safety and Health Management (OHS) to Construction Workers

There are seven indicators used as a reference in the assessment of the implementation of Occupational Safety and Health management, such as personal protective equipment, indicator signs, banners and posters, toilet indicators, rest area indicators, shelter area and smoking area, worker barrack condition indicators, waste management indicators and indicators First aid kit. Based on the seven indicators, the authors divide indicators based on safety indicators and health indicators. The results of the analysis on the safety indicators and health indicators can be seen in Table 2 and Table 3.

Table 2. Level of achievement of implementation of Occupational Safety indicator

No.	Variables	Percentage Criteria
1	Main Indicator (Personal Protective Equipment)	78,3%
2	Main Indicators (Signs, Banners, Information)	81,6%
	Average	**80 %**
		Good

Source: Analysis Results, 2017

Table 3. Level of achievement of Health works indicator implementation

No.	Variables	Percentage Criteria
1	Main Indicator (Toilet)	74,6%
2	Main Indicators (Rest Area, Shelter)	65,8%
3	Main Indicator (Barrack Condition)	61,9%
4	Main Indicators (Waste Management)	69,7%
5	Primary Indicator (First Aid)	56,6%
	Average	**65,7%**
		Enough

Source: Analysis Results, 2017

From the results of the above analysis, the indicators used as a benchmark assessment of the implementation of safety work obtained a "good" level of achievement, while the indicators used as a reference assessment of the implementation of occupational health obtained an "enough" level of achievement. Both levels of achievement of the implementation indicate that the level of achievement of the implementation of occupational health is still relatively low, if it is ignored and not repaired it will have an impact on the health of workers, primarily biological health and will lead to lack of focus workers in performing tasks and can lead to accidents in Job location.

The level of achievement of the seven indicators used as a reference assessment on the implementation of management Safety and Health (OSH) can be seen in Table 4.

Table 4. Level of achievement of OHS management implementation

No.	Variables	Percentage Criteria
1.	Main Indicator (Personal Protective Equipment)	78,3%
2.	Main Indicators (Signs, Banners, Information)	81,6%
3.	Main Indicator (Toilet)	74,6%
4.	Main Indicators (Rest Area, Shelter)	65,8%
5.	Main Indicator (Barrack Condition)	61,9%

6.	Main Indicators (Waste Management)	69,7%
7.	Primary Indicator (First Aid)	56,6%
	Average	69,8%
		Good

Source: Analysis Results, 2017

From the results of the above analysis, the overall level of achievement of the implementation of safety and health is classified as "good", but it still needs to be improved, especially in the implementation of health, since there are still 3 indicators that are "enough" i.e. rest and shelter area indicators, Indicator of workers' barrack condition and first aid indicator, while the other five main indicators show the level of implementation achievement that is classified as "good".

The most influential factor Management Implementation

To determine the factors that influence the implementation of safety management and occupational health partially is the method of Simple Linear Regression Analysis with the help of SPSS program version 22. The steps in this method is to create a simple regression equation model, then do the interpretation of the model Followed by statistical tests of existing regression models consisting of Test-F, Test-t, and Coefficient of Determination (R^2).

Based on the analysis of the seven reference factors, the factors that affect the implementation of safety and health management can be seen in Table 5.

Table 5. Factors that affect the implementation of occupational safety and health

No.	Indicators	Magnitude of Influence
1	Personal Protective Equipment	2,194 units
2	Signs, Banners, and Posters	1,428 units
3	Toilet	2,328 units
4	Rest Area and Shelter	2,757 units
5	Barracks/Plot Workers	1,531 units
6	Waste Management	2,497 units
7	Availability of First Aid	3,968 units

Source: Analysis Results, 2017

IV. CONCLUSION AND RECOMMENDATIONS

Conclusion

Implementation of the Elevated Road Segment I (MYC) development project has been generally well run, because in this project the contractor has provided Personal Protective Equipment (PPE) for the workers and the socialization of OSH has also been done by the contractor. Achievement of the implementation that needs to be improved is the condition of barracks/bedside workers and rest area as worker's resting place in this case is closely related to health workers. The most influencing factors in improving the implementation of occupational safety and health are First Aid indicators, toilet indicators, waste management indicators, indicator of availability of rest area/shelter, PPE indicator, worker barrack indicator, and indicator of signs and banner completeness.

Recommendations

Contractors should be more active in reminding workers to give priority to safety and health work. The need for the company to work closely with the nearest hospitals so that the handling of workers who experience accidents can be handled properly and quickly, considering the company has not cooperated with the hospital.

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