

Implementation of occupational health and safety (OHS) management system in The Villa Babakan Cangu Badung development project

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Abstract. The general objective of the research is to find out the measured data of standard or SOP deviations with the implementation of OHS in the field and to find out the causes of the implementation of OHS as an influence on the number of occupational accidents that occur in construction projects. The research method uses descriptive and observational design, research data in the form of questionnaires as primary data and OHS plan reports as secondary data. As subjects in the study were 25 workers in the Villa Babakan Cangu building project. Based on the results of the analysis through the initial level internal audit with 64 criteria according to Government Regulation No. 50 of 2012 concerning the application of OHS, the assessment level of the application of OHS was 80.45 percent with the category of good application and the results of the quiz test stated that the workers agreed that the project implementers had prepared working conditions accordingly with OHS standard with a score of 1.75. Workers do their job with a natural work attitude with a score of 1.68.

1. Introduction

Occupational health and safety (OHS) issues in Indonesia are still often overlooked. This is indicated by the still high rate of work accidents in Indonesia, every seven seconds there is one work accident case. The Chairperson of the Association of Construction Occupational Health and Safety Experts (A2K4) Indonesia also said "there are 96,000 cases of workplace accidents every year". In 2017, it was recorded as the year of work accident construction of the most road and bridge infrastructure, specifically in the form of the collapse of girder and the overthrow of crane lifting equipment. This situation is similar to the case of a broken gondola accident in 2008, which recurred and streaked when the volume of construction of property buildings increased [1]. The number of workers in the construction sector reaches around 4.5 million people, 53% of whom only have education up to the elementary school level, even as 1.5% of these workers have never received any formal education. Most of them also have the status of casual daily laborers or bulk workers who do not have formal work ties with project implementers.

This fact certainly complicates the handling of OHS problems which are usually carried out by training methods and explanations regarding the OHS Management System that is applied to the implementers of construction projects. Construction projects in developing countries have three times



the mortality rate compared to developed countries. This is certainly very concerning. The level of concern of the business community for OHS is still low even though workers are important tools for project implementers [2].

The obligation to organize a OHS Management System for project implementers - large project implementers through labor law, has only produced 2% of the 15,000 more large-scale project implementers in Indonesia who have implemented the OHS Management System. The lack of this amount is largely due to the presumption that the OHS program will only be an additional cost for implementing the project.

Many construction service project implementers have implemented OHS management well, but many on the contrary pay less attention to the implementation of OHS management. This is caused by several supporting factors, one of which is the lack of proper implementation of the OHS implementation in a construction project as contained in the legislation concerning OHS and also this can be caused by lack of supervision by the department unit on OHS actors. To find out more about this, the need to conduct research on the OHS Management System carried out by the construction industry sector by specifically analyzing the implementation of OHS in the Canggü Badung Villa Babakan Building Project.

2. Methodology

The research design is a research strategy in identifying problems before the final planning of data collection and used to define the structure of the research to be carried out [3]. In this study, researchers used Descriptive and Observational research designs. Descriptive research is research that seeks to describe problem solving in research. This regulation is also based on analysis of numbers. The conclusions in this study were analyzed based on data collected by researchers, for example through questionnaires and direct interviews. The collected data is analyzed with statistics and the results are interpreted in conclusions. The characteristics of descriptive research are: In general, it presents a portrait of the state of a project; The conclusion is the narrative / portrait of an object based on interpretation of the data collected; Action research is research conducted by directly doing the subject under study; During the process of carrying out these actions carried out observations, interviews or testing to obtain research data.

The characteristics of this study are the object under study was asked to do the actual activities and be examined and action research on a construction project. The population in this study were taken from 20 villa at Babakan Canggü building project. The sample is a number of individuals who are representatives of the population. The sample used in this study were 30 respondents. To give more direction or focus more on the selection of samples that really can represent the number of population, the sampling technique is used with accidental sampling.

In this study researchers used data collection techniques with tools in the form of questionnaires and data in the form of OHS reports from the Canggü Villa Babakan Building Project where the data will be grouped into primary data. Primary data collected directly based on the results of the direct survey, namely through the distribution of questionnaires and interviews about the commitment of project implementers in the implementation of OHS. In this study using a method of data analysis that begins with Descriptive statistics, where what is meant by descriptive statistics is a data processing tool that serves to describe or give an overview of the object studied through sample data or population as it is.

The data collection technique in this study is a questionnaire in the form of a number of statements that must be responded by workers as respondents. The data needed in this study are OHS personnel, duties and authorities of each OHS personnel, and reporting on OHS implementation. Data collected, processed and analyzed descriptively in the form of qualitative data.

Qualitative data is data in the form of sentences, words or images. The research data processing process uses the SPSS version 23 software program. The data obtained from this questionnaire aims to identify the building executor's commitment in the implementation of OHS from the jobs carried out that refers to legislation concerning OHS. Operational is one of the instruments of research because it

is one of the stages in the process of collecting data. The definition of operations makes the concept that is still abstract to be operational which facilitates the measurement of these variables. An operational definition can also be used as a limitation of the definition used as a guide for conducting an activity or research work. The operational research instruments in this study are:

- The OHS report in the study is a report made by the executor of the villa building based on reporting on its implementation.
- The legal basis is a tool that is used as a reference in the implementation of OHS.
- OHS personnel are people who work both as implementers and observers in this field.
- Duties and authorities are a duty and responsibility that must be carried out by OHS personnel.

3. Results and discussion

To measure workers' understanding of OHS can be seen from the results of questionnaires in Table 1.

Table 1. Understanding of workers about OHS.

Number of Question	Frequency				Total Score	Average Score	%
	1	2	3	4			
1	0	2	19	9	97	3.23	0.15
2	0	4	23	3	89	2.97	0.14
3	0	3	16	11	98	3.27	0.15
4	0	1	23	6	95	3.17	0.14
5	0	0	26	4	94	3.13	0.14
6	0	2	22	6	94	3.13	0.14
7	0	3	22	5	92	3.07	0.14
Amount						21.97	1.00
Average						3.14	

The results of the descriptive analysis in Table 1. show that the mean score of workers' understanding of OHS is 3.14 included in the "agree" statement. To measure the evaluation of work attitudes in project implementation, it can be seen from the results of questionnaire entries in Table 2. From Table 2, it can be seen that most workers carry out their duties with a natural attitude. Workers do their job with the posture of sitting and standing alternately, by doing things like bending / twisting the wrist, holding the elbow away from the body, working with the neck bent, using the fingers to operate the tool. Based on this, it can be seen that the average score is 1.68 with the statement "Yes". The physical condition of the work environment has supported worker activities. This can be seen based on the evaluation of the work environment regarding the availability of emergency exits, fire prevention, building maintenance, machinery, storage, hazardous materials, noise, environmental conditions, training, welfare, average scores 1.75 with the statement "Yes".

Table 2. Evaluation of work attitudes.

Number of Question	Frequency	
	Yes	No
	1	2
1	13	17
2	10	20
3	2	28
4	5	25
5	4	26
6	5	25
7	12	18
8	2	28
9	26	4
10	4	26
11	22	8
Amount		18.50
Average		1.68

With regard to the understanding and understanding of the workforce on work safety procedures that apply in the workplace of the project implementers, it is necessary to pay attention to how much the optimization of the workforce for the implementation of OHS is implemented in the project implementation. To optimize the workforce / workers that need to be considered is the human aspect so that an alternative is needed which includes designing the layout of work equipment and work facilities that support workers, so that they do their work regularly without causing significant fatigue. By considering these conditions, it is necessary to design a work system that is in accordance with the principles of ergonomics, namely a work system that improves work comfort and productivity.

To measure the comfort and productivity of work on the Villa Babakan Canggus project in this study using research instruments in the form of questionnaires. In evaluating work attitudes obtained a score of 1.68 is included in the "Yes" category, meaning that the work attitude taken can provide comfort at work and does not affect the level of fatigue in the body. While the evaluation of the physical condition of the work environment obtained a score of 1.75 into the category "Yes", meaning that the physical condition of the work environment has fully supported the work activities of workers. Based on the description above, the project executor's commitment to the implementation of OHS in the development of this project has been stated to be well implemented. The good results are supported by various factors, one of which can be seen from the OHS planning program.

The level of implementation of OHS from the results of internal audits in the Implementation of building work on the Villa Babakan Canggus Project is 80.45% with a good level of implementation. To monitor more accurately not only guided by the results of the audit, but also must be analyzed regarding the evaluation of the incidence rate that occurred. OHS management system includes policy (policy), organizing (organizing), planning and implementation, evaluation (evaluation), action for improvement (actions for improvement). From this planning into one with implementation, with this it can be said that good planning with better implementation can provide good work results in this case can achieve the goals and objectives of the policy or project implementation commitment [4, 5].

The results of internal audit with OHS audit criteria at the initial level were 64 criteria, obtained the results of the implementation of OHS in the building work implementer was 80.45% of these results when viewed from the level of implementation and success according to Government Regulation No. 50 of 2012 in the range 60 - 84% which is in the level of good appraisal. The level of "good"

assessment of the implementation of OHS carried out by the implementation of the project is not only stated based on the results of the internal audit, but also from the evaluation of the incidence rate [6].

OHS handling must be carried out considering the occurrence of a work accident in a construction project. OHS handling carried out by the executor of building works in the Canggü Villa Babakan Project can be seen from the plan to provide facilities and infrastructure. The handling carried out by the executor of building work on this project is by making plans to provide OHS facilities and infrastructure, as well as the OHS training plan. Plans to provide OHS facilities and infrastructure are as follows: OHS equipment includes PPE, which consists of a helmet, flame vest, mask, gloves; Emergency and evacuation facilities include first aid kits, evacuation routes, gathering places.

In addition to the provision of facilities and infrastructure mentioned above, it is also planned that the timetable for the implementation of work will include a list of needs and schedules for the procurement of construction materials, construction equipment, construction workers. This can help the placement of workers in accordance with their expertise, arrangement of work areas and work environment, as well as arrangements for the order in which work is carried out [7]. To review the objectives carried out in accordance with the expectation of the need to carry out a review and improvement in the field of OHS. This can be done by developing an OHS culture in the work environment.

From the OHS handling plan that has been made, OHS handling which is formed by the project implementer on the construction of this project has fulfilled the criteria for OHS implementation audit based on Government No. 50 of 2012 with No Criteria 1.4.1 (labor involvement and scheduling consultations with project implementing representatives appointed to be documented and disseminated throughout the workforce) and criteria No 1.4.8 If viewed in terms of the benefits of the implementation of OHS based on PP No 50 of 2012, the ongoing handling of risks in the implementation of the project can prevent greater losses to project implementers and as a form of recognition of OHS performance. Besides that, it can also reduce the number of work accidents which will also increase national work productivity. To maintain the continuity of the form of OHS handling that has been made, it is necessary to carry out a review and improvement of the performance of OHS through the development of K3 culture.

A person's work attitude is influenced by 4 factors, namely physical characteristics, types of task requirements, workstation design and work environment [8]. Work attitude or non-ergonomic working conditions will eventually lead to complaints such as disorders of the musculoskeletal system [9]. Bad body attitude (not physiological) during work and lasts a long time causing a burden on the musculoskeletal system and having a negative effect on health, besides that workers are not able to mobilize their abilities optimally [10]. It is clear that if there is no physiological work attitude it means there is a lack of harmony between humans and work stations, giving rise to undesirable things (which can be called short-term impacts) such as work mistakes, less productive and the emergence of additional expenses such as for medical expenses, loss of wages due to absence due to illness, decreased production. While the long-term impact can occur pathological changes in muscle tissue, namely pain quickly arises even though working briefly bending the body and so on. A comfortable work environment is often determined by several factors, including task structure, job design, leadership patterns, cooperative patterns, availability of supporting facilities and rewards. From the whole statement evaluated through the initial internal audit regarding the implementation of OHS obtained 80.45% with the category of good implementation this is certainly supported by the way of handling and developing the OHS culture that has been carried out by the executors of the building Villa Babakan Canggü.

4. Conclusions

Based on data processing and analysis in this study, conclusions are obtained as follows: The level of OHS implementation at Villa Babakan Canggü reaches a percentage of 80.45% with a good level of implementation; The Villa Babakan Canggü Project has high commitment to the implementation of OHS seen from the following indicators: Workers agree that the project implementer has prepared

working conditions in accordance with the OHS standard with a score of 1.75; and workers do their job with a natural work attitude with a score of 1.68. From these data it can be concluded that the commitment of the project implementers to the implementation of OHS made by the Villa Babakan Canggü project implementer has been stated to be well implemented in terms of the comfort and productivity of the work of the workers.

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