The Measurement of Proaktive and Reaktive Performance towards Occupational Health and Safety Program

The Measurement of Proaktive and Reaktive Performance towards Occupational Health and Safety Program

H Masiku[1*], H Parung[2], R U Latief[3] and R Arifuddin[3]

[1] Doctoral Student, Department of Civil Engineering, Faculty of Engineering, Universitas Hasanuddin
[2] Professor, Department of Civil Engineering, Faculty of Engineering, Universitas Hasanuddin
[3] Associate Professors, Department of Civil Engineering, Faculty of Engineering, Universitas Hasanuddin

*corresponding author: henrimasiku@yahoo.com

Abstract. The purpose of this study is to analyze the effect of proactive and reactive performance on indicators of the application of OHS in high-rise building construction. The data used in this study were obtained from a questionnaire (primary) and several observations and direct interviews with employees in 20 types of high-rise building projects in Indonesia. The analysis technique used is multiple regression analysis using hypothesis testing, namely the F test and t test. The results showed that simultaneously and partially the independent variables consisting of proactive performance (X1) and reactive performance (X2) had a significant effect on the variable construction K3 program (Y). From the ANOVA or F test, a significant number (Sig) (0.037) is obtained which is below 0.05 and the Fcount is 11.570 where the F count is greater than F table, F table is 3.84. These results indicate that the regression model is feasible to be used to predict the proactive performance and reactive performance variables together to influence the performance of the OHS culture of high-rise building construction. Seeing the performance points of construction project employees can be influenced by many other points from the results of the T Test calculation where the competence of workers obtains T results of 3.098 or the highest among others so that with this we can say that worker competence is a critical factor in improving cultural performance.

1. Introduction

Occupational Health and Safety (OHS) which is used as an aspect of labor protection as well as protecting company assets with the aim of providing guaranteed safe and healthy conditions for every employee and to protect Human Resources (HR). The implementation of the OHS program as much as possible reduces the number of work accidents, especially in Indonesia [1].

In high-rise building construction projects, it is found that the number of work accidents occurs due to several factors, including the workforce who is less disciplined in complying with OHS and weak internal supervision of the OHS sector in the workplace. So it requires a level of application of regulations on OHSAS in construction projects in Indonesia. According to BPJS of employees, there is a high rate of work accidents in the construction sector as figure 1, explains the monitoring and evaluation data for the implementation of OHSAS.

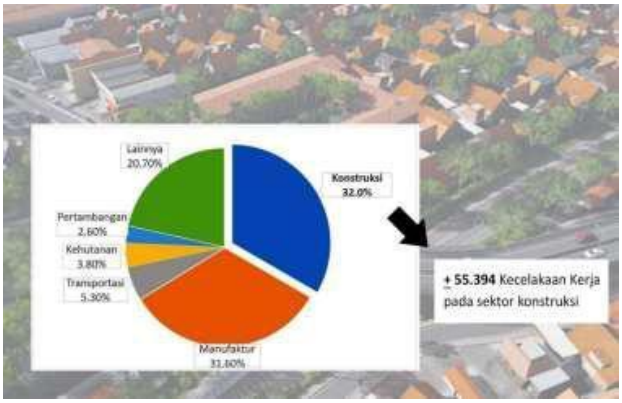

Figure 1. Work Accident Rate in 2019 [2]

It can be seen in Figure 1 that construction companies and implementers in Indonesia still really don't care about work accidents that occur during the project. The very unsafe conditions of construction projects and the behavior of workers also cause a lot of work accidents [3]. Moreover, in high-rise building construction projects the number of work accidents occurs due to several factors, such as the lack of discipline of workers in complying with OHS and weak OHS supervision in the internal workplace. Therefore, the issue of occupational safety and health (OHS) in general in Indonesia is often overlooked. This is indicated by the high number of work accidents, which is of course very concerning. From this background, proactive and reactive performance analysis of companies is needed in implementing high-rise building construction [4,6,8]. In addition, management needs to carry out a strategy to fulfil company performance by prioritizing good OHS implementation.

2. Literature Review

Mackaey et al., (2004) stated that according to OHSAS 18001: 2007 defines Occupational Safety and Health as conditions and factors that affect or will affect the safety and health of workers (including contract workers or contractors) as well as guests or other people in the workplace [11]. Occupational Safety and Health (OHS) is a system designed to ensure the good safety of all personnel in the workplace so that they do not suffer injuries or cause disease at work by complying with or obeying occupational safety and health laws and regulations, which are reflected in changes attitudes towards safety in the workplace [5,7,9]. The large number of workers on construction projects makes it difficult for companies to implement occupational safety and health programs effectively. The factors that cause work accidents can be divided into factors of workers themselves, factors of construction methods, equipment, and management. So that an active strategy is needed to prevent work accidents by maximizing work safety indicators.

To determine whether a strategy is effective or not, companies can compare the incidence, severity and frequency of illnesses and accidents before and after the strategy is implemented [10]. In general, the oil drilling process is an activity that contains many hazardous elements. The management team as the responsible party during the construction process must support and strive for programs that can ensure that work accidents do not occur / minimize work accidents or take preventive measures. Measuring the possibility of an accident is categorized as proactive performance, while measuring the impact that occurs is called reactive performance. These two performances affect the indicators of success in implementing OHS in the construction of high-rise buildings that are full of work accidents during the implementation process.

The implementation of OHS in the company will always be related to the legal basis of implementing the OHS program itself. This legal basis is the main foothold in interpreting the rules in determining what or how the OHS program should be implemented. The legal sources that are the basis for implementing the OHS program in Indonesia are as follows :

1. Law Number 1 Year 1970 concerning Work Safety
2. Law No. 3 of 1992 on Social Security for Workers
3. Government Regulation Number 17 of 1993 concerning the Implementation of the Workforce Social Security Program
4. Presidential Decree Number 22 Year 1993 concerning Diseases Arising from Work Relationships
5. Membership Registration Regulations, Contribution Payment, Compensation Payment and Worker Social Security Servants.
6. Law No. 13 of 2003 concerning Occupational Safety and Health

It defines performance as performance, namely the work that can be achieved by a person or group of people in an organization, in accordance with their respective authorities and responsibilities, in an effort to achieve the goals of the organization concerned legally, does not violate the law and is appropriate. with morals and ethics. In other words, proactive and reactive actions in a construction project are urgently needed in order to achieve good and quality construction performance. Efforts to prevent work accidents need to be done as early as possible. The possible actions are (1) identifying each type of work at risk and classifying it according to the level of risk; (2) training for construction workers in accordance with their expertise; (3) conduct more intensive supervision of the implementation of work; (4) provide work protection tools for the duration of the project; (5) implementing arrangements at the construction project site [9,12]. It defines performance as performance, namely the work that can be achieved by a person or group of people in an organization, in accordance with their respective authorities and responsibilities. , in order to achieve the goals of the organization concerned legally, does not violate the law and is in accordance with morals and ethics. In other words, proactive and reactive actions in a construction project are urgently needed in order to achieve good and quality construction performance. Efforts to prevent work accidents need to be done as early as possible. The possible actions are (1) identifying each type of work at risk and classifying it according to the level of risk; (2) training for construction workers in accordance with their expertise; (3) conduct more intensive supervision of the implementation of work; (4) provide work protection tools for the duration of the project; (5) implementing arrangements at the construction project site [12].

3. Research Methodology

In this study, 20 (twenty) types of high-rise building construction projects located in Indonesia are used as research objects. Project types are depicted in **Table 1**.

Tabel 1. Project Name

No	Code of Project	Project Name	Level of Floors	Location
1	GMP	Gedung MIPA UNM	12	Makassar
2	RSB	Rumah Sakit Bhayangkara	6	Makassar
3	A3SS	Apartemen 31 Sudirman Suites	26	Makassar
4	G CSOB	Gedung Ciputra School of Business	8	Makassar
5	GSSMAB	Gedung Sekolah SMA Bambini	9	Makassar
6	RGLPMP 2	Renovasi Gedung LPMP Tahap 2	8	Makasssar
7	GDPS	Gedung Dinas Penghubung Sultra	7	Makassar
8	GSGS	Gedung Stella Garcia School	7	Makassar
9	RRB	Rusun Rawabuntu Banten	34	Tangerang
10	AOG	Apartemen One Galaxy	50	Surabaya

11	GKUMM	Gedung Kuliah Universitas Muhammadiyah Malang	9	Malang
12	AMPV	Apartemen Malioboro Park View	12	Jogyakarta
13	HATS	Hotel Aloft TB. Simatupang	20	Jakarta
14	AEACC2	Apartemen East Coast Center 2	42	Surabaya
15	AT100R	Apartemen The 100 Residence	33	Surabaya
16	AGDL	Apartemen Grand Dharmahusada Lagoon	42	Surabaya
17	GRSUDM	Gedung RSUD Manado	11	Manado
18	OTP	Office Tower Pleindo III	23	Surabaya
19	KRS	Klaska Residence Surabaya	44	Surabaya
20	GSP	Gedung SMP dan SMA Petra 6	10	Sidoarjo

Source: Primary Data, Henrianto Masiku (2020)

This research is a quantitative qualitative research (mix method) with reference to the 2014 OHSAS 18001 standard. To obtain the data in this study, it begins with a literature study to support the process of developing proactive and reactive performance concepts in tall building projects. The process of collecting primary data is by conducting direct assessment tests on 20 high-rise building construction projects in Indonesia, including Makassar, Manado, Surabaya and Jakarta. The data used are primary data which is documentation obtained during observation and distribution of questionnaires to competent parties in the field of OHS in an implementation of a multi-storey building construction project, namely supervisor, QA, QS and OHS Construction staff on the project. Meanwhile, secondary data were obtained from the Indonesian construction OHS document, Law no. 13 of 2003 concerning Occupational Safety and Health and OHSAS 18001: 2014. The formulated research indicators are attached in **Table 2**.

Tabel 2. Research Indicators

Code	Indicators	Code	Indicators	Code	Indicators
P.1	Manual Guidance	P.11	Traffic	P.21	Road and Ramp
P.2	Walls, Floor, and Stairs	P.12	Dig in	P.22	Materials Treatment
P.3	Barriers	P.13	Fire Distinguisher	P.23	Facilities cure
P.4	Scaffolding dan bekisting	P.14	Electricity	P.24	Saw
P.5	Stairs and levelling	P.15	Sirine	P.25	Hand Tools
P.6	Electricity	P.16	Public Safety Tools	P.26	First aid readiness
P.7	Crane	P.17	Supporting Facilities	P.27	Safety Environment
P.8	Lift	P.18	Noisy	P.28	Illness
P.9	Heavy Wheels	P.19	Private Safety Equipment	P.29	Accident equipment
P.10	Hoist	P.20	Chemical safety equipment		

Before carrying out the process of assessing the application of indicators, being proactive and reactive, the validity of the expert is first carried out with the following assessment indicators namely, How do

you respond to the assessment format that has been made; What is the substance of the assessment items?; and How easy is the assessment indicator to be observed?.

4. Result and Discussions

Before carrying out an assessment of the application of indicators, the first thing to do is validation by experts regarding the indicator items to be assessed. Based on Table 3 it can be seen if the indicator items that will be used as an assessment of proactive and reactive actions in high-rise building projects are feasible or valid for use.

Tabel 3. Expert Assessment - Building construction experts on OHS Implementation

Name	Education	Expertise	Affiliation	Response	Subtance
Fitri Hadiprabowo	S1	> 15 Years	LPJK	Good	In accordance with regulations and guidelines for building construction K3
Yusril	S2	5 Years	PT. Duta Abadi	Easy understanding and good enough	The indicators used are in accordance with K3 guidelines and standards for high-rise buildings
Andi Muh. Subhan S	S3	5 Years	PNUP	It's good, but it should be noted that the scoring on an open questionnaire	It is still necessary to study the indicators and dimensions of each variable
Koesmargon	S3	11-15 Years	Universitas Atmajaya Yogyakarta	Very Good	The indicators used encourage respondents to fill in honestly because they do not intimidate respondents

The application of indicators for proactive and reactive performance measurement in the implementation of occupational safety and health (K3) construction in high-rise building projects in 20 types of projects in Indonesia can be seen in **Figure 2**.

This research begins with testing the validity of the questionnaire. In a tool whose measurement is non-physical (latent variable) using a questionnaire, then testing the tool uses validity and reliability techniques. The validity test is carried out to determine the extent to which the statement items can measure each variable under study. To measure the validity of the questionnaire used Pearson product moment correlation (r). If the correlation value r on each statement item produces a value greater than r table or the value of Sig. smaller than α 5%, then the statement item is declared valid and vice versa if the r value is smaller than r table or value ((Sig.)) or the total number of questionnaire points is greater than α 5%, then the statement item is declared invalid. The value of the r table for n = 20 and alpha 5% is 0.444. Validity testing was carried out with the help of the SPSS program version 24.

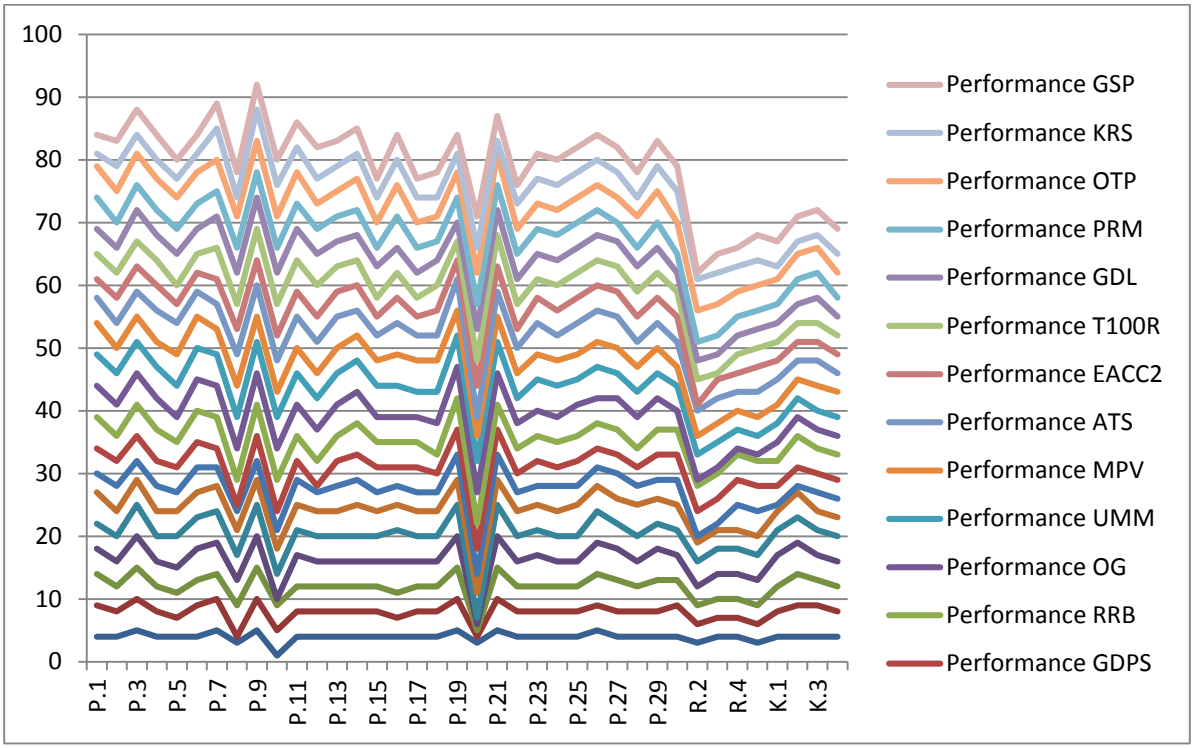

Figure 2. Assessment Questionnaires Indicators on 20 Projects in Indonesia

The results of the validity test using Pearson's product momment correlation on each statement item are presented in **Table 4** as follows

Tabel 4. Validity Test Results on Proactive Performance Variables (Stage 1)

Variabel	Question		*Pierson correlation*	Sigma	Obj.
Kinerja Proaktif	P.1	Manual Guiance	0.628	0.003	Valid
	P.2	Walls, Floor and Stairs	0.675	0.001	Valid
	P.3	Barriers	0.690	0.001	Valid
	P.4	Scaffolding dan bekisting	0.709	0.000	Valid
	P.5	Stairs and levelling	0.692	0.001	Valid
	P.6	Electricity	0.583	0.007	Valid
	P.7	Crane	0.607	0.005	Valid
	P.8	Lift	0.712	0.000	Valid
	P.9	Heavy Wheels	0.646	0.002	Valid
	P.10	Hoist	0.374	0.104	Tidak valid
	P.11	Traffic	0.723	0.000	Valid
	P.12	Dig in	0.638	0.002	Valid
	P.13	Fire Distinguisher	0.622	0.003	Valid
	P.14	Electricity tools	0.608	0.004	Valid
	P.15	Sirine	0.597	0.005	Valid

	P.16	Public Safety Tools	0.643	0.002	Valid
	P.17	Supporting Facilities	0.452	0.045	Valid
	P.18	Noisy	0.718	0.000	Valid
	P.19	Private Safety Equipment	0.462	0.040	Valid
	P.20	Chemical safety equipment	0.133	0.576	Tidak valid
	P.21	Road dan ramp	0.483	0.031	Valid
	P.22	Materials Treatment	0.680	0.001	Valid
	P.23	Facilities cure	0.542	0.014	Valid
	P.24	Saw	0.575	0.008	Valid
	P.25	Hand Tools	0.543	0.013	Valid
Kinerja Proaktif	P.26	First aid readiness	0.603	0.005	Valid
	P.27	Safety Environment	0.500	0.025	Valid
	P.28	Illness	0.650	0.002	Valid
	P.29	Accident equipment	0.583	0.007	Valid

Based on the table above, in general the application of proactive and reactive indicators has been categorized as quite good, good and very good, but there are still 3 indicators that are still bad or poor in application, namely hoist (P.10) and protection against chemicals (P.20). This bad category is due to the lack of application that has been tested for feasibility on the 20 types of projects. Project management needs to be more proactive in developing procedures and plans regarding the safety and health of employees to reduce hazardous working conditions. Danger here can be interpreted as an object, material or condition that can cause injury, damage and / or loss (accident). Identification of potential hazards is a management tool to control losses and is proactive in efforts to control hazards in the field / workplace. In this case no one can predict how severe or how much the consequences / losses will occur if an incident occurs, but the identification of these hazards is intended to prevent an incident from occurring by making certain efforts.

5. Conclusion

A total of 20 types of high-rise building projects were sampled, and validated and tested validation of 29 types of questionnaire questions were obtained. Using SPSS v 24 data analysis, there is a significant validation of the statements, there are 2 invalid statements, namely the P10 and P20, this is due to low implementation in the field. So that the results of this study obtained 27 types of statements that can be used to measure the performance of the implementation of K3 high-rise building construction in Indonesia.

References

[1] Argama, Rizky. 2006. *Kesehatan dan Keselamatan Kerja Sebagai Komponen Jamsostek*. Makalah Fakultas Hukum Universitas Indonesia. Jakarta.
[2] Arikunto, S. (2006). Prosedur Penelitian: *Suatu pendekatan Praktik*. Rineka Cipta. Behnken, M, Jakarta.
[3] Dessler, Gary. 2010. *Manajemen Sumber Daya Manusia Edisi Kesepuluh*. PT Indeks. Jakarta.

[4] Dewi, Rijuna. 2006. *Pengaruh Keselamatan dan Kesehatan Kerja terhadap Kinerja budaya K3 pada PT*. Ecogreen Oleochemicals Medan Plant. Skripsi Fakultas Ekonomi Universitas Sumatera Utara. Medan.

[5] Elphiana E.G, Yuliansyah M. Diah, & M. K. Z. 2017. *Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Kinerja Karyawan Pt*. Pertamina Ep Asset 2 Prabumulih. Jurnal Ilmiah Manajemen Bisnis Dan Terapan, 2, 103–118. https://ejournal.unsri.ac.id/index.php/jembatan/article/download/5296/pdf (Diakses bulan juli 2020)

[6] Ervianto, Wulfram I. 2005. *Manajemen Proyek Konstruksi*, Edisi Revisi, ANDI. Yogyakarta.

[7] Fathoni, Muhammad Iqbal 2008. *Hubungan Antara Persepsi Karyawan Terhadap Program Kesehatan dan Keselamatan Kerja dengan Kepuasan Kerja Karyawan*. Skripsi Fakultas Psikologi Universitas Muhammadiyah Surakarta.

[8] Ferris Stephen P. 2009 An International Analysis of Dividend Payment Behavior United States Hidayat, Muhammad 2012 *Faktor - Faktor Penentu Kesuksesan (critical success factors) Pada Kerjasama Pemerintah dan Swasta Bidang Infrastruktur di Indonesia*. Makalah Fakultas Psikologi Universitas Muhammadiyah Surakarta

[9] Jati, Ibrahim Kusuma. 2010. *Pelaksanaan Program K3 Karyawan PT*. Bitratex Industries Semarang. Universitas Diponegoro. Semarang.

[10] Kusuma, L., & Suletra, I. W. 2017. *Analisis Risiko K3 di Proses Produksi Tiang Pancang dengan Metode JSA dan Risk Matrix* : Studi Kasus di PT X. 8–9.

[11] Mackay, C. J., Cousins, R., Kelly, P. J., Lee, S., & McCaig, R. H. 2004. *Management Standards and work-related stress in the UK*: Policy background and science. Work and Stress, 18(2), 91–112. https://doi.org/10.1080/02678370410001727474 in acces in juny 2020.

[12] Putraden, A. M. 2017. *Penerapan keselamatan dan kesehatan kerja (k3) dalam meningkatkan kinerja karyawan* bagian produksi pada pt gading mas indonesia teguh jember : Universitas Jember.