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The Effect Of Occupational Health And Safety Programmes On Employee Productivity In The Mining Industry

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ABSTRACT

The implementation of occupational safety and health has the potential to affect employee productivity in a mining area. The study aims to determine the application of occupational safety and health in the production area, employee work productivity, and the effect of the application of occupational safety and health on employee work productivity at PT Bumi Sentosa Jaya. This research location is located in Boedingi Village, Lasolo District, North Konawe Regency, Southeast Sulawesi Province. The research method begins with data collection, analysis and data testing. Data collection in this study was carried out by distributing questionnaires to 42 employees in the production area and the data analysis techniques used were descriptive analysis techniques, multiple correlation tests, multiple linear regression analyses, partial tests (t tests), simultaneous tests (f tests) and the coefficient of determination. The results of this study indicate that the overall application of occupational safety and health is classified in the good category with an occupational safety value of 134.08; occupational health value 134.06; and employee work productivity with a value of 136.08. The application of occupational safety and health affects employee work productivity with an influence of 32.1%.

INTRODUCTION

The rapid development of industry will require the provision of quite large amounts of energy, especially in developing countries (Nuruzzaman & Djanegara, 2008). As a result, businesses compete with each other to increase productivity in terms of production, time, and human capital (Simanjuntak & Abdullah, 2017). Human capital, especially labor, is one of the major influences. Higher levels of occupational health and safety are needed for all of these advances (Nurdiansyah, 2018). Factors related to occupational safety and health are important for every business or industry (Nirtha et al., 2019). In fact, it is a necessity for big businesses today because occupational safety is the main concern of every employee (Kaligis et al., 2013). A safe workplace is a place where a good management system controls the work environment, tools, and materials perfectly (Kamal et al., 2019; Siswanto, 2020). Proper human resource management is very important and receives serious attention (Fridayanti, 2016).

This is intended so that the company's human resources can maximize their efforts to achieve organizational goals (Wijaya & Paing, 2018). In order to manage human resources effectively, management must be able to plan, organize, and manage resources effectively (Nirtha et al., 2019). One of the needs that is considered is occupational safety and health (K3). Every business strives and strives for high employee productivity (Aziza et al., 2022). To achieve company goals as much as possible, businesses must be able to maintain and increase employee productivity (Fridayanti, 2016) and Hadiyanti and Setiawardani, 2018). PT Bumi Sentosa Jaya is a laterite nickel ore mining company located in Boedingi Village, Lasolo District, North Konawe Regency, Southeast Sulawesi Province.

This company has many employees who come from diverse educational backgrounds. Therefore, a study was conducted on the analysis of the effect of the implementation of occupational safety and health on employee work productivity at PT Bumi Sentosa Jaya. The study aims to determine the implementation of occupational safety and health in the production area, employee work productivity, and the effect of the implementation of occupational safety and health on employee work productivity at PT Bumi Sentosa Jaya. The hope is to provide recommendations to the company in increasing employee work productivity.

RESEARCH METHODS

The research method begins with data collection, analysis and data testing (Ramadhan & Agustin, 2017). Data collection in this study was carried out by distributing questionnaires to 42 employees in the production area and the data analysis techniques used were descriptive analysis

techniques, multiple correlation tests, multiple linear regression analysis, partial tests (t tests), simultaneous tests (f tests) and coefficients of determination (Wahyuni et al., 2018).

RESULTS AND DISCUSSION

At the Cross loading stage where the correlation between indicators and variables. Below is the cross loading calculation value using SmartPLS. Evaluation of tables 4.14, 4.15, 4.16 cross loading with the concept of correlation between indicators and the variables themselves. In the indicator table of work safety, it is correlated with the variables themselves with a correlation value of X1.1 = 0.855, and a value of X1.8 = 0.653. In the correlation of occupational health indicators with their variables with values of X2.2 = 820, and X2.4 = 0.827. and in the correlation of productivity indicators with work productivity variables with a value of Y7 = 1,000, all correlations have been declared good, this is due to the requirements in measuring cross loading where the correlation value between indicators and variables must be greater than other values.

Formative Measurement Analysis. The analysis of the model value in formative measurement can be done by looking at the regression coefficient value with the significance of the weight value, namely the estimated value for the formative measurement model must be significant, this level of significance can be seen with the bootstrapping procedure. From the calculation of the outer weight regression coefficient, it shows that the value of X1.1 of 7,601 against Y is above 1.96, meaning it is significantly accepted, and X1.8 with a value of 3,048 against Y is above 1.96, meaning it is significantly accepted, the value of X2.2 is 4,104, the significance is accepted and the value of X2.4 is 4,071 against Y is above 1.96, also acceptable. To see the value of the next regression coefficient with Multicollinearity (collinearity indicator), namely in the results of the outer VIF value above, it can be seen that the Y7 value = 1,000, X1.1 value = 1,029, X1.8 value = 1,029, X2.4 value = 1,144, and X2.2 value = 1,144 indicates a limit of <10, which means that there is no multicollinearity problem from each of these indicators. and for the inner VIF value, it can be seen that the work safety value on work productivity is 1,004 and the work health value on productivity is 1,004, which means that there is no multicollinearity problem from each of these variables. Inner Model Analysis (Structural Model) Structural model analysis is divided into several data processing using SmartPLS, namely the first with R where the attention to apply variable (y) where after being calculated to % becomes 24%. This means that work productivity is influenced by 24% by work safety and work health. Secondly, with Path coefficients, which are values to indicate the direction of the relationship between variables. The path coefficient of the influence of work safety and health on work productivity shows that the magnitude of the influence of work safety is 41% and the influence of work health on work productivity is 24%, so the relationship between the two is stated as positive. Third, F2 for effect size is a value to indicate the value of f2 can be interpreted as to whether the predictor variable has a weak, medium, or large influence at the level structural.

The F2-Square image shows that the exogenous variable is in the range of 0.15, which means that it has a moderate influence on the dependent variable (endogenous). Fourth, Predictive relevance (Q2) is a value to indicate how good the observation value is produced. From the calculation results, it is obtained that the blindfolding value of the Q2 calculation results on SmartPLS shows a Q2 value of 0.167. A Q2 value greater than 0 (zero) indicates that the model is said to be good enough, while a Q2 value less than 0 (zero) indicates that the model has less predictive relevance. In this research model, the construct or endogenous latent variable has a Q2 value greater than 0 (zero) so that the predictions made by the model are considered relevant. Goodness of Fit (GOF) Index Analysis .

The GOF index is a single measure to validate the combined performance of the measurement model and the structural model. The GOF value is obtained from the average communalities index multiplied by the R2 value of the model [13]. The GOF value ranges from 0 to 1 with the interpretation of the values: 0.1 small Gof, 0.25 moderate Gof, 0.36 large Gof. From the results of the GOF calculation, a value of 0.43582 was obtained so that it can be concluded that the model has a large GOF exceeding the range limit of 0.36, meaning that the greater the GOF value, the more appropriate it is in describing the research sample. K3 Analysis of Work Productivity From this study, the results showed that each indicator has a positive relationship with its construct/latent variables and each latent variable has a significant influence on other latent variables. The following are indicators of variables that influence labor productivity on the plantation of PT. ABC of employee occupational safety (X1) is significantly influenced by indicators of work instruction methods (X1.8), personal protective equipment (X1.1), support and communication (X1.6), and which is explained by the equation X1 = 0.756 X1.8 + 0.709 X1.1 + 0.688 X1.6, Employee occupational health variables (X2) are significantly influenced by indicators of employee health facilities (X2.2) and health maintenance (X2.4) which are explained by the equation X2 = 0.820 X2.2 + 0.827 X2.4, Work productivity variables

(Y) are significantly influenced by Indicator Y7 which is explained by the equation Y = 1,000 Y7. Therefore, the implementation of occupational health and safety (K3) and its influence on labor productivity on the indicator of achieving production targets exceeds the significance limit of 0.7 is very strong, which means that K3 has an influence on increasing work productivity in the field. Occupational safety and health is an important aspect in efforts to improve employee welfare and productivity. If the level of occupational safety is high, then accidents that cause illness, disability and death can be minimized as much as possible.

If occupational safety is low, then this will have a negative impact on health, resulting in decreased productivity. Decreased productivity can occur if the elements of productivity are not met, these elements include quality, efficiency, and effectiveness. The company is expected to seriously maintain the safety and health of its employees by making rules on occupational safety and health that are implemented by all employees and leaders This is a different indicator that affects work productivity in research. One of the occupational health indicators is the infrastructure and health services that need to be improved in order to provide assistance in accidents caused by low occupational safety, Research. where the results of the research show that Occupational safety and health (X1), work discipline (X2) and work supervision (X3) simultaneously (together) have a positive and significant effect on employee productivity (Y) in the cutting crimping section of PT. Sumitomo Wiring Systems Batam Indonesia, And in research. The results of the study concluded that the occupational safety and health (OSH) variable has a significant effect on the productivity of the workforce, and work discipline has a significant effect on employee productivity

CONCLUSIONS AND RECOMMENDATIONS

Here are some conclusions on the analysis of the influence of occupational health and safety (K3) on labor productivity where employee labor productivity at PT. ABC is significantly influenced by the variable of occupational health and safety with a Goodness Of Fit index of 0.43, meaning that the results of the study are in accordance with the samples taken in the field. The occupational health and safety program (K3) provided by PT. ABC in its application can be seen in the outer weight of the research results showing indicators of variable X, namely Personal protective equipment X1.1 = 0.709, more intensive supervision of work implementation X1.6 = 0.688, work instruction method X1.8 = 0.756, health insurance provided by the company to employees X2.2 = 0.820 and education about the importance of health in completing work X2.4 = 0.827 This value exceeds the limit of 0.5, meaning that there is an influence of occupational health and safety on labor productivity. The implementation of occupational health and safety (K3) and its influence on labor productivity on the indicator of achieving production targets exceeds the significance limit of 0.7 which is very strong, which means that K3 has an influence on increasing work productivity in the field.

REFERENCES

P. Fithri and R. Y. Sari, “Analisis Pengukuran Produktivitas Perusahaan Alsintan CV. Cherry Sarana Agro,” J. Optimasi Sist. Ind., vol. 14, no. 1, p. 138, 2016, doi: 10.25077/josi.v14.n1.p138-155.2015.

S. Bastuti, “Analisis Bahaya K3 Pada Line Produksi Dengan Metode Hazard Operability Study (Hazops) Dan Fishbone Diagram Di Pt. Silinder Konverter Internasional,” J. Ilm. Tek. Ind., vol. 9, no. 2, pp. 148– 157, 2021, [Online]. Available: https://publikasi.mercubuana.ac.id/index.php/pasti/article/view/8587.

Sulaeman, “Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Kualitas Kehidupan Kerja Dan Produktivitas Kerja,” Angew. Chemie Int. Ed. 6(11), 951–952., vol. 13, no. April, pp. 15–38, 2019.

I. Z. Sutalaksana, “Kajian Awal Sistem Keselamatan Kerja Pada Kasus Kecelakaan Di SBU ITS PT. X dengan Menggunakan Metodologi Human Factors Analysis and Classification System (HFACS),” J. Ergon. dan K3, vol. 3, no. 1, pp. 11–17, 2018, doi: 10.5614/j.ergo.2018.3.1.3.

R. Soehatman, Sistem Manajemen Keselamatan & Kesehatan Kerja OHSAS 18001. 2010. [7] M. Nur and Chania Dwi Oktafia, “Pengaruh Pelaksanaan Program Keselamatan dan Kesehatan Kerja (K3) terhadap Produktivitas Kerja Karyawan pada PT. Bormindo Nusantara Duri,” J. Tek. Ind. UIN SUSKA RIAU, vol. 03, no. 02, pp. 116–125, 2017.

L. T., “Hubungan Keselamatan dan Kesehatan dengan produktivitas kerja karyawan (Studi kasus: Bagian Pengolahan PTPN VIII Gunung Mas Bogor),” 2007.

H. R. A. P. K. Prayitno, “The Effect of Occupational Safety and Health on Work Productivity of Field Workers of Access Network Maintenance at PT. Telkom Kandatel Jember,” Int. J. Sci. Basic Appl. Res., vol. 22, no. 1, pp. 257-262., 2015.

T. J. W. D. R. . Kaligis, Raldo Septian Victor , Sompie B.F., “Pangaruh Implementasi Program Keselamatan dan Kesehatan Kerja (K3) Terhadap Produktivitas Kerja PT. Trakindo Utama Balikpapan Facility Upgrade,” J. Sipil Stat., vol. 1, no. 3, pp. 219–225, 2013.

A. N. Kusuma, “Pengaruh Keselamatan Dan Kesehatan Kerja (K3) Terhadap Produktivitas Kerja Karyawan Bagian Sistem Distribusi PDAM Surya Sembada Surabaya,” J. Ilmu Manaj., vol. 5, no. 1, pp. 1–10, 2017.

S. Hermawan, Rino Tri; Hasibuan, “Analisis Pengaruh Tingkat Pengalaman dan Coaching Style Terhadap Kualitas Kepemimpinan Manajer Proyek Dalam Upaya Peningkatan Produktivitas di PT. JCI,” J. Pasti, vol. XI, no. 1, pp. 84–97, 2016, [Online]. Available: https://publikasi.mercubuana.ac.id/files/journals/3/articles/1357/submission/copyedit/1357-3090-1- CE.pdf.

I. Ghozali, Aplikasi Analisis Multivariat Dengan Program SPSS (Edisi ke-4). 2006.

L. H. Imam Ghozali, Partial Least Square: Konsep Teknik dan Aplikasi Smart PLS 2.0M3. 2012.

A. M. A. Ausat and T. Peirisal, “Determinants of E-commerce Adoption on Business Performance: A Study of MSMEs in Malang City, Indonesia,” J. Optimasi Sist. Ind., vol. 20, no. 2, pp. 104–114, 2021, doi: 10.25077/josi.v20.n2.p104-114.2021.

E. Worldailmi and B. Hartono, “Hubungan Boundary Spanning , Kinerja Middle Manager Proyek , Dan Kinerja Proyek Menggunakan,” vol. XV, no. 2, pp. 147–160, 2021.

B. G. Ukhisia, R. Astuti, and A. Hidayat, “Analysis of the Occupational Health and Safety Effects on Productivity of Employees,” J. Teknol. Pertan., vol. 14, no. 2, pp. 95–104, 2013,

H. (2015) Abdillah, W., Partial Least Square (PLS). 2015. [19] N. Susanto, E. A. Mujahidin, and S. Siswanto, “Pengaruh Kebiasaan Berkendara Terhadap Perilaku Berkendara Dan Atribut Berkendara Driver Ojek Online (Studi Kasus),” J@ti Undip J. Tek. Ind., vol. 15, no. 3, pp. 169–176, 2020, doi: 10.14710/jati.15.3.169-176.

J. R. Salsabila, A. A. Suhendra, and I. Mufidah, “Usulan Strategi Peningkatan Kepercayaan Pelanggan Dan Keputusan Booking Pelanggan Hotel X,” J@ti Undip J. Tek. Ind., vol. 17, no. 2, pp. 118–127