

[69]

The Effect of Occupational Safety Health Management (OSH) and Organizational Culture on Employee Performance in Oil and Gas Mining. Survey on PT Caltex, Pekanbaru

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Abstract. The goal of this research is to analyze safety management in Indonesia and learn from The Case of PT Caltex, Riau. Safety management is an important thing, especially to achieve the zero accident level. Safety management and organizational culture are used as independent variables and attempt to measure their effect on workers' performance. The survey method is used with the total sample of 86 workers. The estimation model is a simple regression and multiple regression. The influence of safety management (X_1) toward the level of workers performance (Y) was positive, which means the worker's performance will be better due to the improvement of safety management. Statistical method or t-test is used to determine the effect of independent variables toward dependent variable (workers' performance). The influence of organizational culture (X_2) toward the level of workers performance (Y) has a positive effect with a coefficient of regression 0.711 and coefficient of determination 85 %. The influence of safety management (X_1) and organizational culture (X_2) toward the level of workers performance (Y) has a positive effect simultaneously with a coefficient of correlation 0.947 and coefficient determination 89,7 %. The test of hypothesis showed that the parameter regression had a significant effect, and all the research hypotheses are accepted. The findings in this research give important things, to improve the management aspect and create a conducive organizational culture.

Keywords: safety management, organizational culture, and worker's performance

1. Introduction

Occupational health and safety management aims to overcome all possible risks of undesirable events in running an organization or company. The height of a risk depends on how big the potential event is and how big the impact is. Risks can be positive (beneficial) and can be negative (detrimental). In the aspect of occupational health and safety the risk is usually negative such as injury, damage, or operational disruption. Negative risks like this must be avoided or minimized.

Occupational health and safety placement is in a very decisive position in the work process. Medium and large companies will first conduct an evaluation in the process of a job that will be carried out by the contractor. An examination carried out is work safety management or more commonly called CSMS (Contractor Safety Management System). If the assessor's score does not meet the standards that have been set, the company will automatically lose or not pass and is not allowed to follow the next process. This assessment needs to be done to determine the extent to which the company has a commitment to workplace safety. Organizations or companies that do not have a good safety management system will have a bad impact both internally and on external companies.

In the implementation of occupational health and safety management, high management commitment and sportsmanship are needed. The implementation must be encouraged by staff or employees who truly inspire

occupational safety health and are able to cooperate well with all employees accompanied by mutual awareness and a high sense of belonging and understanding of safety. If Management is not committed to carrying out work safety programs, it can be predicted that future results will not be in line with what is targeted. Occupational health safety management is not a product of an organization/company that can be traded and traded on the market, but the result of a work health management that can determine the production price of an organization/company in the market. Good occupational health and safety will not bring profit to the organization/company at the same time, but it takes a long process and time and will bring long-term benefits.

Production can be stopped if it does not meet safety requirements, production will not be good if safety is poor, employee motivation will drop if safety is not guaranteed, market prices of products will be destroyed if safety is destroyed, production costs will be high due to many non-existent costs unexpectedly, there are frequent interruptions in production and many other things that happen outside of those already programmed as a result of a bad work safety management system.

Every year, thousands of accidents occur in workplaces that cause casualties, material damage, and production disruptions. In 2007, according to Jamsostek (Indonesian Social Security), there were 83,714 accidents resulting in 1,855 deaths, 6,810 permanent disabilities and 75,049 injured. (This data does not include material loss, medical expenses, and compensation). Material losses due to accidents are also large such as damage to production facilities, medical expenses, and compensation. During 2007 accident compensation issued by Jamsostek reached IDR 165.95 billion. Other material losses are much greater.

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The results of the World Economic Forum survey linked competitiveness with accident rates. Competitiveness of a country turns out to be related to the level of safety. Countries with low competitiveness also have a low level of safety. Indonesia's competitiveness index is at the third level from below above Zimbabwe and Russia with a value below 3.5 and an accidental death index of 17-18 per 100,000 workers. In the first place is Finland with a competitiveness index 6 and an accident mortality index below 1 per 100,000 workers. Malaysia has a competitiveness index of 5 with an accidental death index of around 11 per 100,000 workers. This condition is caused by a lack of awareness and understanding of business people in Indonesia about the importance of OHS aspects as an element to improve competitiveness.

Today the aspect of OHS has become a global issue that affects trade and goods between countries. The issue of OSH is one of the non-tariff barriers in the world trade system in addition to environmental issues, clean products, human rights, child labor, and wages. This has happened around the flight with the ban on Indonesian airlines entering the European Union because their safety standards are deemed not to meet the requirements.

Wieke Yuni Christina, et al. (2008), mentioned the importance of organizational culture and the commitment of cooperate leaders in the implementation of OSH. In addition, Robbins (2008) states firmly the relationship between organizational culture and work productivity, where organizational culture has a very strategic role to encourage and improve the effectiveness of organizational performance, especially management performance, and economic performance, both in the short and long term. this supports the existence of an organizational culture to build awareness and cooperation from all parties to support the implementation of OSH. This awareness emphasizes that the application of OSH is the basic right of protection for workers. Every worker must get protection from the risk of workplace accidents and occupational diseases that can occur. With maximum work protection, it is certain that it will affect the calmness of work, productivity, and the improvement of the welfare of the workforce. Heru Setiawan (2008) saw together the importance of Management Commitment to the implementation of OSH and the support of

organizational culture to increase work productivity. Based on the description above, this study wants to explore the role of OHS implementation and organizational culture to increase work productivity.

2. Research purposes

The purpose of this study was to analyze:

1. Does OHS management partially affect employee performance?
2. Does the organizational culture partially affect employee performance?
3. Do OHS management and organizational culture jointly affect employee performance?

3. Literature Review

3.1 Employee performance

Performance is one of the important concepts in the company's operations, to obtain the desired work productivity. The importance of this performance concept is developing rapidly along with the era of globalization that emphasizes efficiency and enhances the competitiveness of companies performance is closely related to the results of work (output). Gibson, Ivancevich, Donnely, and Konopske (2006), state that performance is the result of work related to organizational goals, namely those that have value for the organization and individuals. As for the supporting factors of the definition area) quality, b) efficiency and c) effectiveness.

Rue and Byars (2007), stated: "Performance refers to how well employees are fulfilling the requirements of the job". This means that performance refers to how well an employee meets the requirements of a job that refers to a combination of three factors, namely: a) Efforts (effort), refers to how hard someone works, b) ability (ability), related to one's ability, and c) direction, refers to how well someone understands what is expected from work. Psychologically, the ability of employees consists of the ability of potential IQ and reality ability (education). While Spector (2008) stated, "Job performance is the result of individual employees that perform their jobs at some reasonable level of proficiency". Performance is influenced by several factors, namely: a) the ability (ability) of an individual to a job, b) motivation (motivation) that is directing the behavior of workers, c) Organizational constraints or constraints (Organizational constraints) contained in the company. Colquitt, Lepine, and Wesson (2009), "Job performance is the value of the set of employee behaviors that contribute, either positively or negatively, to organizational goal accomplishment, where performance is the value of the contribution of employees' behaviors, both positively. or negative, for the achievement of organizational goals. The above statement assumes the factors contained in the performance, including a) task performance (Task performance), b) citizenship behavior (Citizenship behavior), c) counterproductive behavior (counterproductive behavior).

Veithzal Rivai and Ahmad Fawzi Mohd. Basri (2005) states that performance is the outcome or success rate of a person throughout a certain period in carrying out a task compared to various possibilities, such as work standards, targets or targets or criteria that have been determined in advance and mutually agreed upon. Some of the factors contained in this performance lead to a) effectiveness, b) during a certain period, c) standards of work that have been mutually agreed upon. While Marwansyah (2010) states performance as an achievement/achievement of a person with regard to the tasks that are charged to him. Performance can also be seen as a combination of work (what must be achieved by someone) and competence (how one achieves it). This implied three factors in it, namely: a) one's performance, b) work results, c) competence.

Based on the description of the performance theories of the experts it can be concluded that the performance of employees is the work of employees to fulfill job requirements and the achievement of organizational goals. Synthesis of employee performance produces indicators of employee performance, namely: a) quality, b) quantity, c) efficiency, d) effectiveness, e) standard time. Regarding the quality of work, it can be seen from the standard of performance achievement to achieve zero accident and maintenance tools and facilities used.

3.2 Occupational Health and Safety (OHS)

According to Frank Bird, *an accident is undesired event that results in physical harm to a person or damage to property. It is usually the result of a contact with a source of energy (kinetic, electrical, chemical, thermal, etc)*". In the process of occurrence of accidents related to 4 (four) elements of

production, namely People, Equipment, Materials, Environment (PEME) that interact with each other and together produce a product or service. Accidents occur in the process of interaction that is when there is contact between humans with the tools, materials, and environment in which they are located. Accidents can occur due to poor or dangerous equipment or material conditions. Accidents can also be triggered by unsafe working environment conditions such as ventilation, lighting, noise, or unsafe temperatures beyond the threshold. In addition, accidents can also be sourced from humans who carry out activities at work and handle tools or materials.

Today many accident concepts have been developed by OSH experts such as Henry, Frank Birds, James Reason, Petersen, and others. They put forward various accident theories ranging from human factors, management, systems, and behavior. According to Frank Bird, accidents occur due to contact with an energy source such as mechanical, chemical, kinetic, physical that can cause injury to humans, tools, or the environment. This theory was developed, among others, by Derek Viner (1998) called the Concept of Energy.

In this concept, accidents occur due to the energy released from the barrier reaching the recipient (recipient). If insulation is damaged or peeled off, electrical energy can affect the human body or other objects that cause injury or fire. The grinding machine will emit various types of energy such as kinetic energy, mechanical, electrical, sound, and vibration. Heavy objects that fall from a height will cause kinetic energy according to their weight and height. Injury or damage occurs due to contact with energy that exceeds the resilience or threshold of the recipient's ability. The amount of severity of damage depends on the amount of energy received. Objects that fall from a height can cause serious damage or injury to the recipient. However, contact with energy does not just happen, but there is always a cause, for example, because the safety is not installed, the cable is not qualified or peeled, workers do not use gloves or because they work with electrical equipment that is still energized. The cause of this accident was stated by H.W. Heinrich (1930) with his dominion theory which classifies unsafe act and unsafe condition, which is a condition in the work environment of a tool, material or environment that is unsafe and dangerous.

The theory was then developed by Frank Bird which classifies the cause directly (immediate causes) and basic causes. Direct causes of accidents are triggers that directly cause accidents, such as slipping due to oil spills on the floor. The basic cause is a factor that contributes to the incident, for example in the case of a slip, there is a leak or spill of material, poor lighting conditions, rush or lack of supervision in the work environment. Because direct is just a symptom that something is not good in the organization that encourages the occurrence of unsafe conditions. Therefore, in the concept of accident prevention, direct causes must be evaluated more deeply to find out the basic factors that contribute to the occurrence of accidents.

In addition to human factors, there are other factors, namely the inequality of the management system such as planning, supervision, implementation, monitoring, and coaching. Thus the cause of the accident is not always single but multi-causal so the handling must be planned and comprehensive which encourages the birth of the concept of occupational safety and health management system.

3.3 Organizational Culture

Organizational culture is related to how employees understand the cultural characteristics of an organization and is not related to whether or not employees like those characteristics. Organizational culture is a descriptive attitude, not like evaluative job satisfaction. According to Robbins et al., (2008) research on organizational culture seeks to measure how employees perceive their organization: does it encourage teamwork ? does it value innovation? On the contrary, job satisfaction seeks to measure effective responses to the work environment, such as how employees perceive organizational expectations, reward practices, etc.

Meyerson (1987) states that organizational culture represents a common perception of members of the organization or in other words, culture is a system of shared meanings. Therefore, the hope that is built from here is that individuals who have different backgrounds or are not at the same level in the organization will understand the organizational culture with a similar understanding. While Yulk stated, most organizations

have a dominant culture and many sub-cultures. A dominant culture reveals the core values shared by the majority of members of the organization. When talking about the culture of an organization, it refers to its dominant culture, so this is a macro view of culture that gives its own personality in the organization.

Roberts (2005) divides organizational culture over sub-culture, where sub-cultures tend to develop in large organizations to reflect the same problems, situations, or experiences faced by members. Sub-culture includes core values of dominant culture plus values unique addition. If the organization does not have a dominant culture and is only composed of many sub-cultures, the value of organizational culture as an independent variable will be significantly reduced because there will be no uniform interpretation of what constitutes proper behavior and improper behavior.

This aspect of the shared meaning of culture makes it a potential tool to guide and shape behavior. That is what allows one to say, for example, that Microsoft culture values aggressiveness and risk-taking and then uses that information to better understand the behavior of Microsoft executives and employees. But, the reality that cannot be ignored is that many organizations also have various sub-cultures that can influence the behavior of its members.

Culture has a number of functions in the organization, namely :

- 1) Limit. Culture acts as a determinant of boundaries; that is, culture creates differences or makes an organization unique and distinguishes it from other organizations.
- 2) Identity. Culture contains a sense of identity of an organization.
- 3) Commitment. Culture facilitates the birth of commitment to something greater than individual interests.
- 4) Stability. Culture increases the stability of the social system because culture is a social glue that helps unite organizations by providing standards about what employees should say and do.

A form of attitude and behavior. Culture acts as a sense-making mechanism and controls that guide and shape employee attitudes and behavior.

4. Methodology

The research was conducted by conducting a survey on PT Caltex, Riau, a large company in oil and gas mining. The research will be conducted using explanatory surveys through questionnaires to 86 employees who are directly dealing with worker safety in their work. The estimation method used is simple regression and multiple regression, where the independent variable is OHS management and organizational culture, while the dependent variable is the employee performance variable.

5. Results And Discussion

5.1 Effect of Occupational Health and Safety Management (X1) on Employee Performance (Y)

The results of the regression calculation of OHS Management influence on employee performance (Y) is stated in the table below.

Table 1 The influence of X1 on Y
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	39.172	3.041		12.881	.000
	Work safety	.638	.026	.938	24.698	.000

a. Dependent Variable: Employee performance

The above processing results can be expressed in the form of equations:

$$\hat{Y} = 39,172 + 0,638 X_1$$

Where :

Y = Employee performance

X₁ = OHS management

OHS management has a positive effect on employee performance. If OHS management is better and one unit increases, the employee performance will increase by 0.638 units of the score. This shows that OHS

management is very necessary to improve employee performance, especially in overcoming the risk of accidents that can result in vital.

The influence of OHS Management on employee performance can also be stated in the graph below.

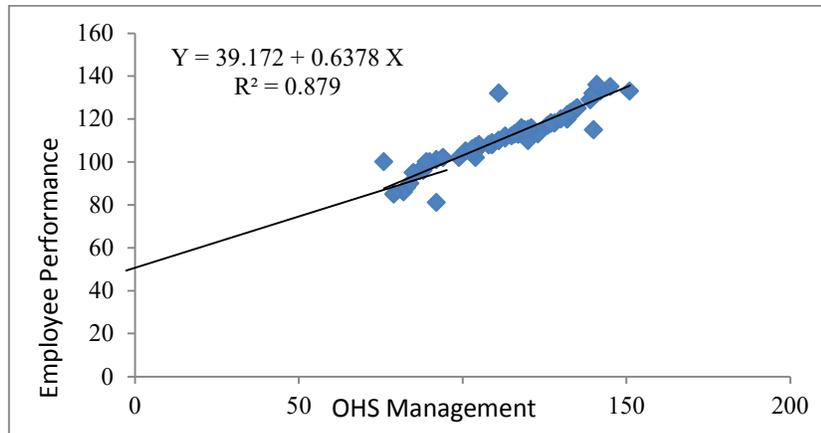


Figure 1.
Effect of OHS Management on Employee Performance

The Determination Coefficient (R²) is 0.879, meaning that 87.9 percent of Y diversity can be explained by the OSH Management variable. This also shows, there is 12.1 percent of the influence of other factors not examined in the model.

Hypothesis testing is done by comparing the value of t count with t table. The value of t-count effect of X₁ on Y is 24,698, while the value of t-table at alpha 5% and degree of freedom 84 or (n-2) is 1,9886. Thus, because t-count is greater than t-table, the research hypothesis which states "there is an influence of OHS management on employee performance" is acceptable, that is, OHS management has a significant influence on employee performance.

5.2. Organizational Culture Influence (X₂) on Employee Performance (Y)

The results of the regression calculation of the influence of organizational culture on employee performance (Y) are stated in the table below.

Table 2. Effect of X₂ on Y

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	50.310	2.941		17.107	.000
Organizational culture	.711	.033	.922	21.791	.000

a. Dependent Variable: Employee performance

The above processing results can be expressed in the form of equations:

$$\hat{Y} = 50,310 + 0,711 X_2$$

Where : Y = Employee performance

X₂ = Organizational culture

The influence of organizational culture on employee performance can also be stated in the graph below.

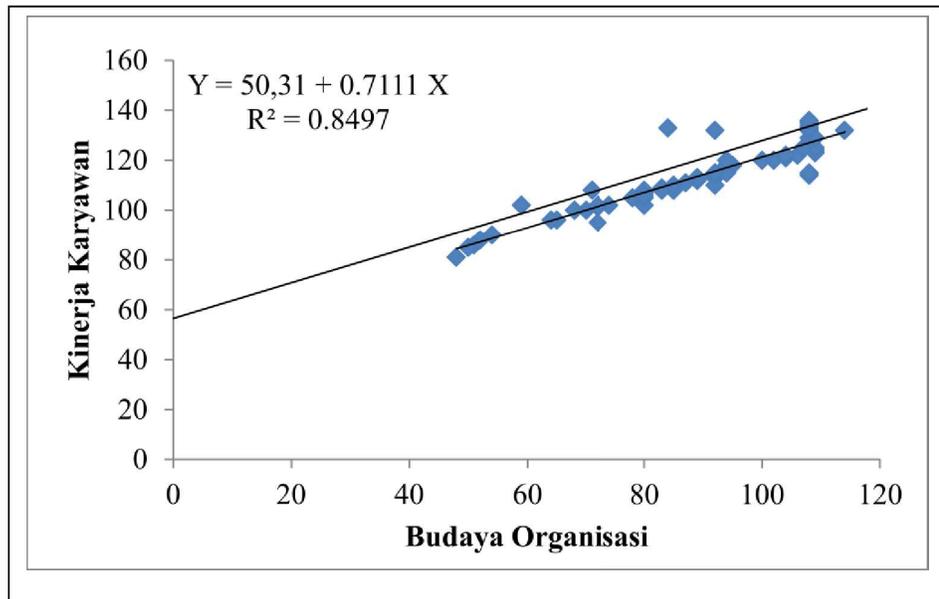


Figure 2. Influence of Organizational Culture on Employee Performance

Organizational culture has a positive effect on employee performance. If the organizational culture is increasingly enhanced by 1 one unit score, then the performance of employees will increase by 0.711 unit score. This shows that organizational culture plays an important role in improving employee performance at the location of this study, namely the company PT Caltex - Riau.

The coefficient of determination (R^2) is 0.8497, meaning that 84.97 percent of Y diversity can be explained by organizational culture variables. In addition, there are also epsilon factors or the influence of other variables not examined in the model of 15.03 percent.

By comparing the value of t arithmetic with t table, the t -calculated value of the influence of X_2 on Y is 21.791, while the t -table value at alpha 5% and the free degree of 84 or $(n-2)$ are 1.9886. Thus, because t -count is greater than t -table, the research hypothesis which states "there is an influence of organizational culture on employee performance" is acceptable, meaning that organizational culture has a significant influence on employee performance.

5.3. Influence of OHS Management and Organizational Culture (X_2) on Employee Performance (Y)

The results of multiple regression calculations of OHS management influence and organizational culture together on employee performance (Y) are stated in the table below.

Table 3. The influence of X_1 and X_2 on Y

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	41.091	2.862		14.360	.000
	Work safety	.404	.065	.594	6.203	.000
	Organizational culture	.285	.074	.369	3.851	.000

a. Dependent Variable: Employee performance

The above processing results can be expressed in the form of equations:

$$\hat{Y} = 41,091 + 0,404 X_1 + 0,285 X_2$$

Where :

- Y = Employee performance
- X₁ = OHS management
- X₂ = Organizational culture

The Determination Coefficient (R²) is 0.947, meaning that 94.7 percent of Y diversity can be explained by management variables and organizational culture together. In addition, there are also epsilon factors or the influence of other variables not examined in the model of 5.3 percent.

6. Research Hypothesis Testing

The hypothesis proposed in this study are:

1. There is an influence of OHS Management on employee performance.
2. There is an influence of organizational culture on employee performance.
3. There is the influence of OSH Management and organizational culture together on employee performance.

Based on the above description, the research hypothesis testing can be stated concisely as shown in the following table.

Table 4. Research Hypothesis Testing

Hypothesis	Influence	t count	t table		Decision
			a = 5%	a = 1%	
H1	X ₁ on Y	24.698	1.9886	2.6356	Ha: accepted
H2	X ₂ on Y	21.791	1.9886	2.6356	Ha: accepted
H3	X ₁ and X ₂ on Y	6.203	1.9886	2.6356	Ha: accepted
		3.851			

By comparing the value of t arithmetic with t table, the t-calculated value of the influence of X₁ on Y is 6.203, the t-count value of the influence of X₂ on Y is 3.851, while the t-table value at alpha is 5% and the degree of freedom is 84 or (n-2) is 1.9886, and the t-table value at 1% alpha is 2.6342. Thus, because t-count is greater than t-table, both at 5% and 1% alpha, then the research hypothesis which states "there is an influence of OHS management and organizational culture together on employee performance" is acceptable, meaning, management and organizational culture together have a significant influence on employee performance. From the description of the table above, it can be stated that the research hypothesis 1 (H1), research 2 (H2) and research 3 (H3) can be accepted.

7. Conclusions

Based on the results of research and discussion on the effect of OSH management variables and organizational culture on employee performance, the following conclusions can be drawn:

1. There is a positive influence on OSH Management on employee performance. OHS management has a significant positive influence on employee performance. The strength of this influence is shown by the correlation coefficient of $r_{y.1} = 0.938$ at the significance level $\alpha = 0.01$, with the regression equation $\hat{Y} = 39.172 + 0.638 X_1$. The coefficient of determination $R^2 = 0.879$, this means that the OSH Management factor contributes 87.9% to employee performance. Research hypothesis 1 (H1) is acceptable which shows that OHS management has a significant influence on employee performance.
2. There is a positive influence on organizational culture on employee performance. The strength of this influence is shown by the correlation coefficient of $r_{y.1} = 0.922$ at the significance level $\alpha = 0.01$, with the regression equation $\hat{Y} = 50.310 + 0.711 X_1$. The coefficient of determination $R^2 = 0.850$, this means that organizational culture contributes 85% to employee performance. Research hypothesis 2 (H2) can be accepted which shows that organizational culture has a significant influence on employee performance.

3. There is a positive influence between OSH management and organizational culture together on employee performance. OSH management and organizational culture together have a positive influence on employee performance. The strength of this influence is shown by the multiple correlation coefficient of $r_{y.12} = 0.947$ with a significance level of $\alpha = 0.01$ with multiple regression equations $\hat{Y} = 41.091 + 0.404 X_1 + 0.285 X_2$. The coefficient of determination (R^2) is equal to $= 0.897$, this means that OSH management and organizational culture contribute 89.7% to employee performance. Based on the theories put forward by experts, it can be concluded that this research can be a reference, that OSH management and organizational culture have a positive influence on improving employee performance, especially in oil and gas mining companies that are full of risk. An increase in both of these variables can prevent the occurrence of risk to the lowest point (zero accident).

Implications and Suggestions

The implications of this study provide a major emphasis on safety management. Compared to other countries, the implementation of safety management in Indonesia is still relatively underdeveloped. To overcome this, the role of management is very important in increasing the understanding of potential hazards and ways to anticipate them early, and for that, it needs to be supported by an organizational culture that is specifically built and created to prevent the occurrence of a disaster. Based on the description of the conclusions and implications described above, the authors propose a number of suggestions, especially those relating to efforts to improve employee performance through improved OSH Management and organizational culture.

- Train and educate employees regularly to be sensitive to the potential of a disaster.
- Socializing SOPs to employees, both in the form of books, as well as instructions that are easy to see and read by employees.
- Building an organizational culture that is hand in hand in preventing potential disasters.

References

- [1] Colquitt, Jason A., Jeffery A. Lepine, Michael J. Wesson, *Organizational Behavior: Improving Performance and Commitment in the Workplace* (New York: The Mc. Graw Hill Companies, Inc. 2009).
- [2] Gibson, James L., John M. Ivancevich, James H. Donnelly, Jr dan Robert Konopaske. *Organizations: Behavior, Structure, Processes. Twelfth Edition*. New York : McGraw-Hill/Irwin, 2006.
- [3] Heinrich, Herbert William. *Industrial accident prevention: a scientific approach*. McGraw-Hill. 1930.
- [4] Marwansyah, *Manajemen Daya Manusia* (Bandung: Alfabeta, 200), p. 228.
- [5] Meyerson, D. and Martin, J. Cultural Change: An Integration of Three Different Views," *Journal of Management Studies*, 1987.
- [6] Paul E. Spector, *Industrial and Organizational Psychology* (John Wiley & Sons, Inc. 2008).
- [7] Robbins, Stephen P.; Judge, Timothy A. *Perilaku Organisasi Buku 2*, Jakarta: Salemba Empat. 2008.
- [8] Rue, Leslie W. and Lloyd L. Byars, *Supervision: Key Link to Productivity* (New York: The McGraw-Hill Companies, Inc. 2007).
- [9] Setiawan, Heru., Pengaruh Budaya Organisasi dan Program Keselamatan, Kesehatan Kerja (OHS) pada Produktivitas Karyawan KAI Bandung, *Trinomika*. Vol 8(), pp 45-52, Juni 2009.
- [10] Veithzal Rivai dan Ahmad Fawzi Mohd. Basri, *Performance Appraisal* (Jakarta:, PT.RajaGrafindo Persada, 2005
- [11] Wieke Yuni Christina, Ludfi Djakfar, Armanu Thoyib, Pengaruh Budaya Keselamatan dan Kesehatan Kerja (OHS) Terhadap Kinerja, *Jurnal Rekayasa*, Vol 6. 2008.