Quest Journals
Journal of Architecture and Civil Engineering
Volume 10 ~ Issue 7 (July 2025) pp: 11-23
ISSN(Online): 2321-8193
www.questjournals.org

Research Paper

An Analysis to Inhibiting Factors of OSH/K3 Management System in Retaining Wall and Drainage Channel Construction Project in Manatuto

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ABSTRACT : *The implementation of the concept of occupational safety and health management should not be considered as an effort to prevent work accidents and work-related illnesses that incur high costs to the company, but should be considered as a form of long-term investment that provides abundant benefits in the future. This study aims to analyze the most dominant factors influencing the implementation of occupational safety and health management systems; and to analyze the partial and simultaneous influence on the implementation of occupational safety and health management systems.*
This study uses a quantitative approach with multiple linear regression methods. The research variables consist of budget planning, frequency of occupational safety and health socialization from the government, supervision and sanctions, level of complexity of job design, availability of occupational safety and health equipment, worker culture at the workplace, and corporate strategy and priority plan. Data collection methods use a questionnaire approach, interviews, and literature studies.
The results of the study indicate that the most dominant inhibiting factors that influencing the implementation of occupational safety and health management are budget planning and the frequency of occupational safety and health socialization from the government. Partially, the variables that have a significant effect on the implementation of occupational safety and health are budget planning (X1) of 0.51 ≥ 0.50, while the variables of the frequency of occupational safety and health socialization from the government (X2), supervision and sanctions (X3), the level of complexity of the work design (X4), the availability of occupational safety and health equipment (X5), worker culture at the workplace (X6), and corporate strategic and priority planning (X7) do not have a significant effect on the implementation of occupational safety and health in retaining wall and drainage channel construction projects. While the simultaneous tests show that the independent variables simultaneously influence the implementation of occupational safety and health in retaining wall and drainage channel construction projects.

KEYWORDS: *Inhibiting Factors, Implementation of Occupational Safety and Health.*

***R**eceived 01 July, 2025; **R**evised 06 July, 2025; **A**ccepted 08 July, 2025 © The author(s) 2025.*
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I. INTRODUCTION

Occupational Safety and Health (OSH) or *Keselamatan dan Kesehatan Kerja* (K3) is a primary means in preventing work accident, work disability, and work fatality resulting from work-related incidents.The aim of K3 is preventing, reducing and in its maximum effort is eliminating the risk of work accidents. The implementation of K3 concept should not be considered as an effort to prevent work accidents and work-related illnesses that incur high costs for the company, but rather as a form of long-term investment, that provides variety of benefits in the future. Budget planning becomes the most crucial factor for the success of K3 implementation since several researchers have found similarities while researching topic about OSH. Inhibiting factor in the K3 implementation is limited funding. In detail, there are seven inhibiting factors that able to hinder the K3 implementation: (1) project budget plann, (2) frequency of K3 socialization from the government, (3) supervision and sanctions, (4) complexity level of project design, (5) the availability of K3 equipment, (6) the worker culture at the workplace, and (7) corporate strategy and priority plan. The mentioned factors are substantial matters that must be considered and paid attention to by the government and contractors aiming so the aim to minimize accident risks is attainable. [1,2,3,4,5]

Before the issuance of Government Regulation No.50 of 2012, work safety guideline used by companies in implementing K3 management system (SMK3) were the regulation from Minister of Manpower No.5 of 1996, and for the scope of Ministry of Public Works, it used Minister Regulation No.09 of 2008. However, shortly after the government regulation No.50 of 2012 was issued, all sectoral regulations must be adjusted accordingly. This government regulation is based on Law No.1 of 1970 and mandated by Law No.13 of 2003. There are thirteen (13) data of Ministry of Manpower and Transmigration until 2013 that reported of more than six workers die every day in Indonesia due to workplace accident. This number is quite high when compared to European countries where only two workers die per day due to work accident. Meanwhile, International Labor Organization (ILO) reported that Indonesia has average number of work accidents to 99,000 cases per year, in which about 70 percent result, causes fatalities of death and permanent disabilities.In Indonesia context, the Occupational Health and Safety Management System or SMK3 is defined as 'a part of overall management system that includes organization structure, planning, responsibilities, implementation, procedures, processes, and resources required for the development, implementation, achievement, review and maintenance of OSH policies in order to control risks related to work activities to create a safe, efficient, and productive workplace" (Minister of Manpower Regulation No; PER.05/MEN/1996). Basic principles of SMK3 have existed in government regulation since 1970 as stated in the Regulation of Republic of Indonesia Law No.1 of 1970 regarding Occupational Safety which explains every worker has the right to have safety protection while carrying out work for the social welfare, also to increase the national production and its productivity. [6,7]

The purpose of this study is:1) analyzes factors related to the implementation and success rate of the OSH management systems or in this study referred as SMK3, 2) analyses most dominant factors that delays the SMK3 implementation, and 3) find strategies to minimize the inhibiting factors of SMK3 implementation in a project of constructing walls and drainage channels in Mananuto Regency.

II. LITERATURE REVIEW

2.1. Occupational Safety

Worker protection encompasses several aspects, one of which is about safety protection aiming to guarantee the workers able to perform their daily tasks in safe condition for attain higher production and productivity of their related work. Workers must have protection from so many issues around them and within themselves which able to affect or disturb them and their work execution. As summarized into definition of occupational health program: "Occupational safety refers to conditions which are secure or free from suffering, damage, or loss at the workplace" and "Occupational safety is a type of safety related to machines, equipments, tools, materials and their processings acted as foundation of the workplace and its environment as well as the method of performing work". [8,9]

While Milyandra in Setiawati stated that "Occupational Safety and Health" could be viewed in having two sides of meaning, as the first meaning implies in a scientific approach, while the second meaning related to an application of program focused on a specific goal. Therefore, occupational safety and health can be classified as an applied science. [10]

Occupational Safety and Health as a program is based on a scientific approach attempted to prevent or reduce the occurrence of danger (hazard) and the risk of illness and accidents along with other potential losses. In sum, OSH is defined as a scientific and practical approach to address potential hazards also health and safety risks that may arise while at work. [11]

According to the above definition, the researchers summarize that safety is an effort to prevent accident occurrence, to protect human for feeling in a safe condition or be secured from suffering, damage or loss, especially for construction workers. To achieve this ideal workplace condition, occupational safety implementation at the workplace is necessary.

2.2. Occupational Health

Occupational health program is a fundamental aspect that must be considered by the employer. With a good health program, it brings benefit to employer because employees will rarely absent, work in more pleasant environment and in overall, the employees or workers able to work longer to achieve the project goal. Work health program indicates a condition free from physical, mental, emotional distrubances or pain caused by the work environment.

As supported by World Health Organization (WHO) in a statement issued in 1948, defined health as 'A state of complete physical, mental, and social well-being and not merely the absence of disease or weaknesses'. In 1986, through Ottawa Charter for Health Promotion, WHO stated that health is "A resource for everyday life, not a purpose of life. Health is a positive concept emphasizing social and personal resources as well as physical capacities'.

Health risks are factors in the workplace that occur when working over time or beyond the designated time period. An environment also can cause emotional stress or physical distrubances. The physical health and safety program develops by a company should consist of one or all of the following elements:

1. Physical health examination at the first time the worker get accepted or hire.
2. Overall health check up for key personnel in a periodical time.
3. Voluntary health checks for all employees periodically.
4. Adequate equipment and medic staff available in the work site.
5. Provide systematic attention that prevents tensions issues.
6. Systematic and periodic examination on good sanitation requirements.

A company must pay better attention to the workers health by providing a healthier working environment and real act in taking more responsibility especially for organization with a high working accident rate. There are several causes that may lead to accidents and health distrubances for workers, such as condition of the workplace environment, lighting arrangement/ lighting setting, inadequate use of work equipment also the physical and mental state of the workers. [12,13]

2.3. *Kesehatan dan Keselamatan Kerja* (K3)

Kesehatan dan Keselamatan Kerja or K3 (Occupational Health and Safety) has a philosophical definition as a way of thinking and attempt to ensure integrity and wholeness of physical and mental well being of workers in particular, and human in general, for achieving social wealth and prosperous society through its works and culture. Whereas from scientific perspective, it is a body of knowledge and its application focuses on effort to prevent the possibility of accidents and illnesses due to work. In line with the pace of national development, the nation is ready to make an advance movement through independent and modern industry toward realizing the industrialization era. The process of advanced industrialization is characterized by (among other things) mechanisms, electrification and modernization. In such circumstances, machine use, devices, modern installation and hazardous material may increase. [14]

The goals of Occupational Safety and Health/K3 program include protecting the workers' health, improving the work efficiency, and preventing work-related accidents and illnesses in which put into detailed by the following directions of K3 as stated below:

1. Anticipate the presence of hazard-causing factor and performing prior prevention.
2. Understanding hazard types present in the work place.
3. Evaluate the level of hazards in the workplace.
4. Controlling the occurrence of hazards or complication conditions at workplace. Regarding the OSH regulation, the main regulation are the OSH for Workers Act and the Implementation of guidelines of the OSH act.

Furthermore, Budiono explains that Occupational Safety encompasses scope related to machinery, workplace foundation, and the working environment, along with the ways to prevent occupational accidents and illnesses, provide protection for production resources to enhance work efficiency and productivity. Occupational health is a specialization of health science where its practice aimed at ensuring the workers to achieve the highest possible degree of health (in physical, mental or social) through preventive or curative efforts against illnesses/health disorders caused by work and environmental factor as well as from common diseases. According to Budiono, indicators of *Keselamatan dan Kesehatan Kerja/* K3 are include:

1. Human or Personal factor. Human factor in this context are include lackness of physical, mental and psychological ability, lackness of related knowledge and skills, as well as stress and insufficient motivation.
2. Work or Environmental factor. This factor include less or inadequate leadership and supervision, trust issue in procurement of goods, maintenance, work standards and misuse.

From several descriptions about K3 as mentioned above, it can be concluded that indicators of K3 are categorized into environmental factor and human factor.In support, Anogara also stated that aspects of K3 are include: 1) the workplace, where an individual or workers carry out the work activities, 2) tools and materials, which are also essential for the company to produce goods, and 3) method in performing the work, as each part of production has different ways of working which implemented by the workers. [15,16]

2.4. Occupational or Work Accident

According to regulation from Minister of Manpower of Republic Indonesia number: 03/MEN/1998 regarding procedure in reporting accident and accident inspection, definition of accident in this context is an unintended and unforeseen event that may result in human casuality and/or property damage. [17]

Furthermore, Silalahi said occupational or work accident can be defined as any unsafe act or condition that can result into an accident, and based on the definition of work accident, a complete definition of occupational safety and health is created, stating that the way to tackle occupational accidents is eliminating the causal elements of work accidents and implementing strict supervision at the workplace. [18]

Two primary causes of workplace accidents are unsafe behavior and unsafe environmental conditions. According to data from the Labor Training Bureau, cause of accident that have occurred and reported until the present day mostly happen due to careless behavior, non-compliance with the work regulation, do not following standard operating procedures, do not wear personal protective equipment and poor physical condition.

The percentage of causes in workplace accidents are 3 % due to unavoidable reasons (such as natural disaster), 24 % due to inappropriate environment or equipment that does not meet work standards, and 73 % due to unsafe behavior. In brief, an effective way to prevent workplace accidents is avoiding five unsave behaviours mentioned above.

While in general, every company should have a strategy to reduce and even to eliminate the possibility of workplace accidents occur among workers according to company's condition. Main strategy that the company needs to implement are:

1. The management division needs to establish form of protection for workers in dealing with work accidents. For instance, due to financial reason, workers' awareness of occupational safety or the responsibility of company and workers makes the company may have a minimum or even maximum level of protection.
2. The management division can determine whether the regulations on occupational safety are formal or informal. In formal setting, it means that every rule is stated in writing form, and will be implemented and controlled according to the regulation, whereas in informal setting means that every rule is expressed as unwritten or conventional and implemented through training and agreements.

III. RESEARCH METHOD

3.1. Type or Research

This study employs a quantitative method by gathering opinions, experiences, and attitudes of respondents to obtain primary data through a questionnaire as a data collection method from a predetermined population or predetermined sample size.

3.2. Research Location

The location of the study was in Manatuto Regency, this site was selected based on several reasonings with primary reason was Manatuto Regency at that moment has a retaining wall and drainage channel construction project. While another consideration was the research location that from geographical perspective has steep terrain and ravines with hills surrounding.

3.3. Population and Sample of the Research

Population in this study were employed workers at the retaining wall construction project in Manatuto Regency, with a total number of 140 workers and a sample of study amounted to 62 workers as selected through a random sampling system.

3.4. Identification of Research Variables

The selection of research variables for this study based on identified factors as the factors that able to influence the implementation of K3 at the workplace. These factors were employed in the K3 implementation at the organization and have been identified and became research variable as presented in the following table (Table 1).

Table 1. Research Variables

No	Variable	Description
1	X_1	Budget Plan
2	X_2	Frequency of K3 socialization from the government
3	X_3	Supervision and Sanction
4	X_4	Level of work design complexity
5	X_5	The availability of SMK3 equipments
6	X_6	Workers' culture at the workplace
7	X_7	Corporate's strategy and priority planning

3.5. Method of Data Tabulation

Analysis in this study was descriptive analysis and inferential statistical analysis. The stage of data analysis in this study include:

3.5.1. Test of Validity

A test of validity is conducted using confirmatory factor analysis to each variable. By performing this analysis, it is visible whether an indicator may not or may not be considered to have a significant influence or able/disable to explain a construct. Meanwhile, the validity criteria through confirmatory factor analysis is stated to be valid if the KMO value is > 0.5 and the Bartlett's Test has a significant value of < 0.05.

3.5.2. Test of Reliability

In addition to be a valid number, the research instrument also must be reliable or trustworthy. An instrument will be considered as reliable if the measurement tool yields consistent or stable results. Reliability tests using the Cronbach's Alpha method states that an instrument is reliable if the alpha value is greater than 0,6, as mentioned in the following formula:

$$\alpha = \frac{(\mathrm{K})\mathrm{Cov/Var}}{1+(\mathrm{K}-1)\mathrm{Cov/Var}} \quad \text{.....} \quad (1)$$

Desc.:
α = alpha
K = amount of points within the scale
Cov = covariance average between points
Var = variance average from points

After assessing the alpha value, next step of the analysis is comparing the Alpha value with the critical reliability number. Instrument used in a variable is stated as reliable if it has a Cronbach Alpha value > 0.60. [20]

3.5.3. Multiple Linear Regression Analysis

Menurut Indiarto dan Supomo, analisis regresi linear berganda umumnya digunakan untuk menguji pengaruh dua atau lebih variabel bebas terhadap variabel terikat [21]. Dalam hal ini rumus regresi linear berganda adalah:

According to Indiarto and Supomo, the multiple linear regression analysis in general is used to examine the influence of two or more independent variables on a dependent variable [21]. In this discussion, the formula of multiple linear regression is:

$$Y = a+b_1X_1+b_2X_2+b_3X_3+...+e \quad \text{.....} \quad (2)$$

Constant:
a : constant
b_1, b_2, b_3 : regression coefficient
X : independent variable
Y : dependent variable
e : error value

3.5.4. Test of Classical Assumption

1. Multicollinearity Test

A test of muticollinearity is conducted to assess whether in regression model shows any correlation among the independent variables. Multicollinearity occurs when there is a perfect relationship among independent variables, which make it difficult to isolate the effect of each variable individually on the observed dependent variable. One way to observe whether multicollinearity occurs or not is by looking at the VIF (Variance Inflation Factor) value; if the VIF cutoff is > 10, then multicollinearity occurs. Conversely, if the VIF value is < 10, then multicollinearity does not occur.

2. Heteroscedasticity Test

A test of heteroscedasticity is conducted to examine whether there is unequal variance residuals from one observation to another in a regression model. To seek whether there is a presence of heteroskesdasticity or not, it can be done by Glejser test or the Park test. In this study, the test used to detect the presence of heteroscedasticity was the Glejser test.

3. Autocorrelation Test

The autocorrelation test aims to examine whether the linear regression model has a correlation between the disturbance variable at t time and the disturbance variable at t-1 time or the previous period. To determine

whether the regression model contains autocorrelation, the Durbin-Watson approach can be used with the following criteria [20,22]:

- If the DW value is between DU and 4 – DU, H_0 is accepted, meaning there is no autocorrelation in the model.
- If the DW value is between 0 and DL or 4-DL and 4, H_0 is rejected, meaning there is an autocorrelation in the model.
- If the DW value is between DL and DU or 4- DL and 4 – DU, the test results are inconclusive, so it cannot be determined whether there is autocorrelation or not.

4. Normality Test

The purpose of normality test is examining whether the regression model, the disturbance variable, or residuals have a normal distribution. Normality test conducted by Kolmogorov-Smirnov test with a confidence level (α) sets at 5 %. Testing criteria based on the Kolmogorov-Smirnow test are as follows:

- If significant value > 0.05, then the data is normally distributed.
- Jika signifikan < 0,05 maka data tersebut tidak berdistribusi normal./ If the significant value < 0.05, then data is not normally distributed.

3.5.5. Hypothesis Test

A hypothesis test has a purpose to find out the signification of influence from independent variable to the dependent variable.

1. Simultaneous Significance Test (F Test)

According to Ghozali, F statistical test essentially shows whether all independent variables included within the model has a significant/real influence togetherly or has simultaneous effect on the dependent variable, by making a comparison of F-count value to F-table value with significant level below 0.05 (5 %). The calculation formula used by Sugiyono is presented in the following equation [20,23]:

$$F = \frac{R^2/_k}{(1-R^2)/_{(n-k-1)}} \quad \text{..... (3)}$$

Desc:

F : F_{count} > then will be compared with F_{table}
R : coefficient of multiple correlation
k : number of independent variables
n : number of sample

By the following criteria for decision making process:

- If $F_{count} > F_{table}$, the H_0 is rejected and Ha is accepted, meaning two or more independent variables together (simultaneously) have a significant effect on the dependent variable.
- If $F_{count} < F_{table}$, then H_0 is accepted and Ha is rejected, meaning two or more independent variables together (simultaneously) do not have significant affect the dependent variable.

2. Partial Test (t Test)

According to Ghozali, t test in basic principle is a test for indicating how much the influence of independent variables to the dependent variable. It is conducted by comparing the t_{count} value with t_{table} value. If t_{count} value > t_{table} value with a significance level below 0.05 (5 %) then the independent variable has a significant effect on the dependent variable on a partial or individual basis. The formula to find the t_{count} value is [21]:

$$t = \frac{b_i}{sb_i} \quad \text{..... (4)}$$

Desc:

t : amount of t_{count}
b_i : regression coefficient
sb_i : standard of error for regression coefficient

Criteria for decision-making:

- If t_{count} value < t_{table} value, then H_0 is accepted and Ha is rejected, meaning the independent variable does not have a significant partial effect on the dependent variable.

- If t_{count} value > t_{table} value, then H_0 is rejected and Ha is accepted, meaning the independent variable has a real partial effect on the dependent variable.

3.6. Research Framework

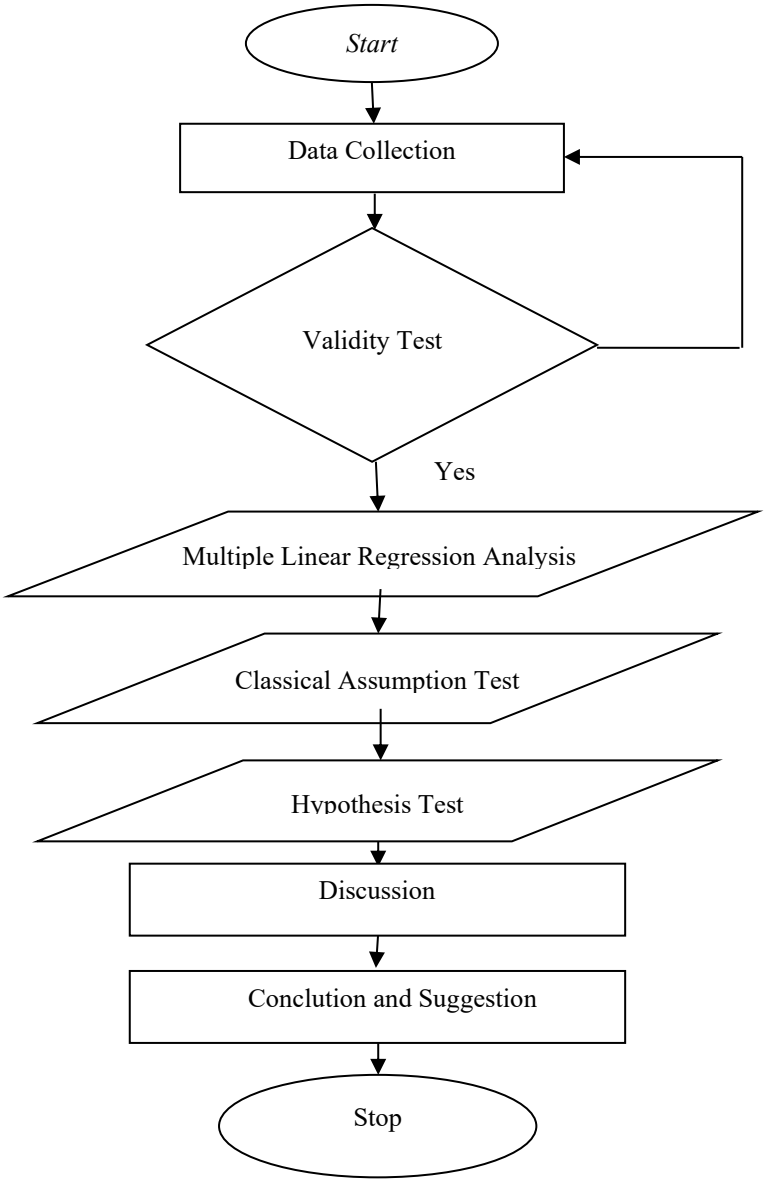

Figure 1. Problem Solving Framework

IV. RESULT AND DISCUSSION

4.1. Research Instruments Analysis

4.1.1. Factor Analysis

Validity test of this study uses Confirmatory Factor Analysis technique. The factor analysis technique performed by assessing KMO and Bartlett's test. This testing evaluates the value of Measure of Sampling Adequacy (MSA) which is a statistical value that indicates the proportion of variance within the variable that serves as the basis of factor analysis.

Table 2. KMO dan Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,79

Bartlett's Test of Sphericity	Approx. Chi-Square	170,905
	Df	28
	Sig.	0,000

Table 2 is showing the overall MSA value is 0.79 > 0.5. The result indicates the variables used in this study are capable of predicting the model. Whereas the values of KMO and Bartlett's test are 0.000 < 0.05 (α=5%). The result indicates that variables used in the model are correlated with other variables. The correlation values of each variable in the model can be measured by looking at the result of anti-image correlation matrix test. MSA value in the anti-image correlation must have greater value than 0.5. The test results of the analysis is presented in the following table (Table 3).

Table 3. Value of Anti-image Correlation

Variables	***Value of Anti-Image Correlation***	**Criteria Value**	**Description**
Budget Plan (X_1)	,752[a]	0,5	Correlated
Frequency of K3 socialization from govern. (X_2)	,687[a]		Correlated
Supervision and Sanction (X_3)	,811[a]		Correlated
Work design complexity level (X_4)	,784[a]		Correlated
Availability of K3 equipments (X_5)	,873[a]		Correlated
Workers culture at the workplace (X_6)	,847[a]		Correlated
Corporate's strategy and priority plan (X_7)	,779[a]		Correlated
K3 implementation (Y)	,814[a]		Correlated

Table 3 is showing values of anti-image correlation for the variables within the model that found to be greater than the criterion value of 0.5. This result indicates that variables in the model are correlated, meanwhile, the diversity value between one variable to another can be measured by observing communalities of these variables.

Table 4. Value of Loading factors

Variables	**Initial**	**Extraction**
Budget Plan (X_1)	1,000	0,757
Frequency of K3 socialization from govern. (X_2)	1,000	0,683
Supervision and Sanction (X_3)	1,000	0,579
Work design complexity level (X_4)	1,000	0,640
Availability of SM3 equipments (X_5)	1,000	0,523
Workers' culture at the workplace (X_6)	1,000	0,565
Corporate's strategy and priority plan (X_7)	1,000	0,606
K3 implementation (Y)	1,000	0,512

Table 4 describes the loading factor on the variables in the model has the lowest value of 0.635 and the highest value of 0.817. These values indicate the variables in the model have a close and strong relationship among each other.

4.1.2. Reliability Analysis

Reliable test is an assessment to ensure whether variable statements are still relevant and reliable to be tested or not reliable to be tested upon in a research. The result of reliability test from eight studied variables showed a Crobach's Alpha value of 0.840 where the N value indicates that eight variables in this study are very reliable and dependable.

4.2. Classical Assumption Analysis

4.2.1. Multicollinearity Test

Multicollinearity test is a test aimed to determine whether there is or there is no correlative relation exist between independent variables. Multicollinearity testing can be assessed by observing the tolerance value and Variance Inflation Factor (VIF) value.

Table 5. Tolerance Value and VIF Value

Variable	Tolerance	VIF	Description
Budget Plan (X_1)	0,479	2,088	No multicollinearity found
Frequency of K3 socialization from govern. (X_2)	0,570	1,755	No multicollinearity found
Supervision and Sanction (X_3)	0,640	1,562	No multicollinearity found
Work design complexity level (X_4)	0,461	2,169	No multicollinearity found
Availability of K3 equipments (X_5)	0,648	1,542	No multicollinearity found
Workers' culture at the workplace (X_6)	0,564	1,772	No multicollinearity found
Corporate's strategy and priority plan (X_7)	0,543	1,841	No multicollinearity found

Table 5 describes data result of tolerance value for each variable is > 0.1 and the VIF value is < 10. These results indicate no multicollinearity found among the variables in the studied model, or there is no correlation between the independent variables. Therefore, it can be concluded that the research model is a good regression model and suitable to be used.

4.2.2. Heteroscedasticity Test

Heteroscedasticity test in this study was conducted using the Glejser test technique. The scatterplot visualization of residual 2 showed that residual 2 variation in the observed data is not in order or scattered. This visualization result can be affirmed by calculating the absolute results of the t-statistic value.

Table 6. Coefficient of Residual 2

Variable	T	Sig.	Description
Budget Plan (X_1)	-0,586	0,560	No heteroscedasticity found
Frequency of K3 socialization from govern. (X_2)	0,355	0,724	No heteroscedasticity found
Supervision and Sanction (X_3)	-0,46	0,648	No heteroscedasticity found
Work design complexity level (X_4)	1,035	0,305	No heteroscedasticity found
Availability of K3 equipments (X_5)	-0,164	0,870	No heteroscedasticity found
Workers' culture at the workplace (X_6)	1,288	0,203	No heteroscedasticity found
Corporate's strategy and priority plan (X_7)	-0,953	0,345	No heteroscedasticity found

Table 6 describes t_{count} value for each variable is found less than the t_{table} value for 62 respondents of the study (1,671) or the p value > 0,05, meaning the data does not exhibit heteroscedasticity. From the result output of a scatterplot visualization and the 2 residual coefficient, it can be concluded that the regression model is a viable model and appropriate to be used to predict the K3 implementation based on the input of the seven independent variables.

4.2.3. Autocorrelation Test

Testing of autocorellation of the research model is presented on the Durbin-Watson value in the following table (Table 7).

Table 7. Durbin-Watson Values

Model	Durbin-Watson	dL	dU
1	1,723	1,807	1,350
Tabel DW α = 5%, K = 7 dan N = 62			

Table 7 is showing the Durbin-Watson (DW) value is bigger than the upper limit (dU) value (1.723 > 1.350). DW value is less than 4-dU (4 – 1.350 = 2.650) which is 1.723 < 2.650. These results indicate that there is no autocorrelation issue present in the research model.

4.2.4. Normality Test

Normality test of a dataset whether it measurable or not, can be assessed through visual representation of a Normal Probability Plot and by performing a test on residual value through one-sample Kolmogorov-Smirnov Z (K-S). From the visualization of Normal Probability Plot, it shows that data moves in accordance with and approaches the diagonal line. Thus, it is concluded that the data has normal distribution. Then, the second assessment uses the One-sample Kolmogorov-Smirnov Z (K-S) test will be conducted.

Table 8. Result of Normality test of *one sample Kolmogorov-Smirnov Z (K-S) Test* Technical Data

	Unstandardized Residual
Kolmogorov-Smirnov Z	0,563
Asymp. Sig. (2-tailed)	0,909

Table 8 describes Kolmogorov-Smirnov Z value is 0.563 with a probability (significance) value of 0.909, a bigger number than alpha value of 0.05. This result indicates data from the seven independent variables is normally distributed.

4.3. The Inhibiting Factors in K3 Management Implementation

The hypothesis test in this research uses the method of multiple linear regression analysis. The use of this analysis is expected able to provide an overall description of the K3 implementation in retaining wall construction project in Manatuto Regency. Assessment of the test is conducted by examining the value obtained from coefficient of determination (R^2), partial test (t test) and simultaneous test (f test).

4.3.1. Value of Coefficient of Determination (R^2) in Multiple Linear Regression Analysis

The coefficient of determination (R^2) in multiple linear regression analysis is observed through the r-square value, and the result of the test on the K3 implementation regarding the independent variables input are presented in the following table (Table 4.10).

Table 9. The Coefficient of Determination (R^2)

R	**R Square**	**Adjusted R Square**
0,595	0,355	0,271

Table 9 describes the value of r square is 0.355, indicates the OSH implementation is influenced by variables of budget plan (X_1), frequency of K3 socialization from the government (X_2), supervision and sanction (X_3), work design complexity level (X_4), availability of K3 equipment (X_5), workers' culture in the workplace (X_6) also corporate's strategy and priority plan (X_7). All independent variables have contribution in K3 implementation by percentage of 35.5 %, and this result indicates the presence of intentions from the workers to implement K3 procedure to protect themselves during working time.

4.3.2. Partial Test (t Test)

The partial test conducted on research variables of budget plan (X_1), frequency of K3 socialization from the government (X_2), supervision and sanction (X_3), work design complexity level (X_4), availability of K3 equipment (X_5), worker culture in the workplace (X_6), and corporate strategy and priority plan (X_7) on the K3 implementation (Y) is presented in the following table (Table 10).

Table 10. Result of the Partial Test

Variables	**B**	**t-count**	**Sig**
Constant	1,050	2,566	0,013
Budget Plan (X_1)	0,262	1,993	0,051
Frequency of K3 socialization from govern. (X_2)	0,090	0,852	0,398

Supervision and Sanction (X_3)	0,239	1,859	0,069
Work design complexity level (X_4)	-0,159	-1,131	0,263
Availability of SM3 equipments (X_5)	-0,018	-0,137	0,891
Workers' culture at the workplace (X_6)	0,215	1,606	0,114
Corporate's strategy and priority plan (X_7)	0,008	0,060	0,952
Note : t-table value = 1,671 and alpha (α) value = 0,05			

Table 10 shows the magntitude of influence given by variables of budget plan (X_1), frequency of K3 socialization from the government (X_2), supervision and sanctions (X_3), work design complexity level (X_4), availability of K3 equipment (X_5), worker culture at the workplace (X_6), and corporate strategy and priority plan (X_7) on the K3 implementation (Y). The amount of influence from these research variables is illustrated with the following regression equation:

$$Y = 1{,}050 + 0{,}262X1 + 0{,}090X2 + 0{,}239X3 + (-0{,}159)X4 + (-0{,}018)X5 + 0{,}215X6 + 0{,}008X7$$

With data interpretation from regression equation can be explained as follow:

1. The constant value of 1.050 indicates the input variable value for budget plan (X_1), frequency of K3 socialization from the government (X_2), supervision and sanction (X_3), work design complexity level (X_4), availability of K3 equipment (X_5), worker culture at the work place (X_6), and corporate strategy and priority plan (X_7) is zero (0) or there are no inputs from these variables, then the K3 implementation value is 1.050.
2. The coefficient value of variable X_1 (budget plan) is 0.262, meaning every increase of 1 rupiah in the budget planning will increase the number of workers implementing K3 procedure by value of 0.262 %.
3. The coefficient value of variable X_2 (frequency of K3 socialization by the government) is 0.090, meaning that each 1 time increase in government socialization, number of workers applying K3 procedure will increase by 0.090 %.
4. The coefficient value of variable X_3 (supervision and sanction) is 0.239, meaning for 1 time supervision and imposition of sactions will increase the number of compliance workers for implementing K3 procedure by 0.239 %.
5. The coefficient value of variable X_4 (the work design complexity level) is -0.159, meaning for every addition of 1 attribute in the work design will reduce the intention of workers in implementing K3 procedure by 0.159 %.
6. The coefficient value of variable X_5 (availability of K3 equipments) is – 0.018, meaning that every addition of 1 piece of PPE/K3 equipment will reduce the number of workers applying K3 procedure by 0.018 %.
7. The coefficient value of variable X_6 (workers culture at the workplace) is 0.215, meaning that every additional of one (1) worker in the same area will decrease the number of workers applying K3 procedure by 0.215 %.
8. The coefficient value of variable X_7 (corporate strategy and priority plan) is 0.008, meaning for every 1 corporate plan and priority, the number of workers implementing K3 procedure will increase by 0.008 %.

Table 10 shows that partially the variable of the K3 implementation (Y) can be influenced by variables of budget plan (X_1), frequency of K3 socialization from the government (X_2), supervision and sanction (X_3), work design complexity level (X_4), availability of K3 equipment (X_5), worker culture at the workplace (X_6), also corporate strategy and priority plan (X_7). The full data result will be interpreted in the following section:

1. T value for variable X_1 (budget plan) is 1.993 with a significance value of 0.051. The obtained t value is bigger than t table value (1.993 > 1.671 and 0.051 ≤ 0,05) when using the principle of rounding to two decimal behind the comma. This result indicates that budget plan has a significant effect on the K3 implementation, thus H_0 is rejected and H_1 is accepted.
2. T value for variable X_2 (frequency of K3 socialization from the government) is 0.52 with a significance value of 0.398, with obtained t value is less than t table value (0.852 < 1.671 and 0.398 > 0.05). This result indicates that frequency of K3 socialization from the government has no significant effect to the SMK3 implementation.
3. T value of variable X_3 (supervision and sanction) is 1.859 with a significance value of 0.069. The obtained t value is greater than t table value (1.859 > 1.671 and 0.069 > 0.05). This result indicates the supervision and saction have an effect but not significant on the K3 implementation, thus H_0 is accepted and H_1 is rejected.
4. T value of variable X_4 (work design complexity level) is -1.131 with a significance value of 0.263. This result indicates the work design complexity level does not have a significant effect to the K3 implementation, thus, H_0 is accepted and H_1 is rejected.
5. T value of variable X_5 (availability of K3 equipment) is – 0.137 with a significance value of 0.891. The obtained t value is less than t table value (- 0.137 < 1.671 and 0.891 > 0.05). This result indicates the

availability of K3 equipment does not have significant effect on the K3 implementation, thus H_0 is accepted and H_1 is rejected.

6. T value of variable X_6 (worker culture at the workplace) is 1.606 with a significance value of 0.114. The obtained t value is less than the t table (1.606 < 1.671 and 0.114 > 0.05. This result indicates the worker culture at the workplace does not have significant effect to the K3 implementation, thus H_0 is accepted and H_1 is rejected.
7. T value of X_7 (corporate strategy and priority plan) is 0.060 with a significance value of 0.952. The obtained t value is less than t table value (0.060 < 1.671 and 0.952 > 0.05). This result indicates that corporate strategy and priority plan does not have a significant effect to the K3 implementation, thus H_0 is accepted and H_1 is rejected.

4.3.3. Result of Simultanoues Test (F Test)

Result of f test shows the variables of budget plan (X_1), frequency of K3 socialization from the government (X_2), work design complexity level (X_3), availability of K3 equipment (X_5), workers culture at the workplace (X_6), and the corporate strategy and priority plan (X_7) collectively able to influence the variable of K3 implementation (Y). Result of the simultaneous test is presented in the following table (Table 11).

Table 11. Result of Partial Test

Model	F	Sig.
Regression	4,239	,001[b]
Note: F table value = 2,185 and Alpha value = 0,05		

Table 11 shows the f_{count} value from test result is 4.239 with a significance level of 0.001. The f_{count} value is greater than the f_{table} value (4.239 > 2.185) and the p value < 0.05 (0.001 < 0.05). This result indicates that collectively the variables of budget plan (X_1), frequency of K3 socialization from government (X_2), supervision and sanction (X_3), work design complexity level (X_4), availability of K3 equipment (X_5), worker culture at the workplace (X_6) and corporate strategy and priority plan (X_7) have a significant influence to the K3 implementation.

V. CONCLUTION

From the result of this research and the analysis of Occupational Health and Safety management at Manatuto Regency on the retaining wall and drainage channel construction project, researchers are able to obtain conclution as listed below:

1. The inhibiting factors of the K3 implementation in the construction project of retaining wall and drainage channel at Manatuto Regency are include; corporate strategy and priority plan as well as the availability of K3 equipments. On the contrary, the success level of SMK3 implementation is greatly determined by the budget plan factor.
2. The most dominant factor that able to influence K3 implementation are factor of budget plan and supervision and sanction.
3. The appropriate strategy for minimizing inhibiting factors in the K3 implementation is adjustment of budget plan to the level of work hazards, and asking the government to take immediate action for standardizing K3 management system which, in particular must come into effect for construction sector.

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