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Analysis of Construction Experts on the Application of Construction Quality in Road Projects in Jayapura City

Yusuf Ramli Randalinggi[1], Rais Rachman[2], Jonie Tanijaya[3]

[1]Postgraduate Student, Master Program in Civil Engineering, Universitas Kristen Indonesia Paulus, Makassar City, 90125, Indonesia

[2,3]Lecturer, Master Program in Civil Engineering, Universitas Kristen Indonesia Paulus, Makassar City, 90125, Indonesia

Abstract

The application of construction quality will ensure the implementation of a reliable and justifiable output of construction work. The implementation of reliable and usable roads is of course accompanied by good road handling which must be in line with the implementation of a good quality management system to achieve road stability, given that roads function to provide mobility between regions. The achievement of reliable road implementation, of course, cannot be separated from the supervision of construction experts
The purpose of this research is to analyze the influencing factors and obstacles and to develop strategies that can be recommended for the implementation of the quality of road work construction in Jayapura City, Papua Province.
The results showed that the main factors that influence the implementation of construction quality on road works in Jayapura City are human factors, professional management factors, design factors as well as documentation and maintenance factors. Obstacles in implementing the quality of road works are the time required to complete the implementation, understanding of the leadership that has not reached all personnel, inconsistent supervision of work programs, difficulty interpreting standards, lack of cooperation with auditors and unclear operational process standards. Strategies that can be recommended in the application of construction quality in the implementation of road works require mastery of operational standards, continuous improvement, work quality management systems, mutually beneficial supplier relationships and the time required to complete the application of quality work..

Key words: Application, quality, construction, experts.

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1. Introduction

The construction of road facilities and infrastructure to connect sub-districts in Jayapura City and those that connect with regencies in Papua Province is growing rapidly. Billions and even trillions of funds have been allocated for the construction of road projects, both from the APBN, APBD Level I and APBD Jayapura itself. However, it cannot be denied that the reliability of a project cannot be separated from the main objectives of the project, which is cost, time and quality [1]-[2]. The road network is one part of the transportation infrastructure that has an important role in various sectors including economy, politics, socio-culture, environment, defense and security, and it's used for the people welfare. The road is an absolute condition for the development of a region [3]. The application of reliable and usable roads is accompanied by good road handling which must be in line with the implementation of a good quality management system to achieve road stability, which the function of roads is to provide mobility between regions [4]. The quality management system in road implementation is very important and its implementation must be implemented to manifest reliable and prime road services.
In line with the increasing number of construction works in Jayapura City, Papua Province, of course, the results of construction work need to be given more attention, especially in maintaining the quality of construction work. The quality of construction work in Jayapura City still needs to be improved to meet the desired quality standards and this greatly affects the success of construction work. Management of construction quality is one of the important things in the implementation of construction work other than cost and time. One of the requirements for fulfilling construction quality is an understanding of the application of construction quality [5]-[6]. Therefore, all of the parties who work in the implementation of construction work must understand, especially the experts in the field. Construction Experts are people who have work skills

and expertise or individual qualifications in the field of construction services according to the level and depth of competence and professional ability and expertise as evidenced by a certificate of expertise issued by a construction service development certification board [7]-[8].

Various studies that have been carried out on understanding implementation include, Nirmalawati and Maricar (2018), studied the Understanding of Construction Workers on the Application of Quality of Construction Work (Case Study of Buildings in Palu City) [9]. Manabung, Dundu, and Walangitan (2018), studied Understanding of Construction Workers on the Application of Quality Work Construction for the Quality Management Supervision System in the Implementation of Construction Projects (Case Study: Construction of the Laboratory Building, Faculty of Engineering Unsrat) [10]. Husain, Rachim, dan Nurpadli (2019), studied Evaluation of Project Human Resources Understanding of the Quality Management System in the Unifa Building Construction Project [11]. Susila (2013), studied The Application of Quality Management in the Construction Process of Concrete Structures for Rented Flats (Rusunawa) in Surakarta [12].

The aim of this study was to analyze factors of understanding and level of understanding and also constraints of construction experts on the application of the quality of road construction work in Jayapura City, Papua Province.

2. Research Method

2.1. Research location

The research location was in Jayapura City, Papua Province, by reviewing 8 (eight projects) consisting of projects for the 2018, 2019 and 2020 fiscal years. These projects are (1) Improvement of the Baliem Valley Road in Jayapura City, the fiscal year 2018, (2) Improvement of Kampung Buton road Skyline, Papua Province, Jayapura City, the fiscal year 2020, (3) Improvement of the Jayapura City Forestry Complex Road, the fiscal year 2018, (4) Rehabilitation of Entrop Road - Waena, Jayapura City, the fiscal year 2019, (5) Rehabilitation of Bonggo I Road - Kab. Jayapura, the fiscal year 2020, (6) Rehabilitation of Yokiwa Road - Kampung Yoka Road, Jayapura City, the fiscal year 2020, (7) Rehabilitation of Tanjungria Road – Angkasa Jayapura City, the fiscal year 2020 (8) Improvement of Ondikleo Waena Road – Housing of Waena Jayapura City, the fiscal year 2018.

Figure 1. Research Location

2.2. Collecting Data Method

The main purpose of making a questionnaire is to obtain relevant information, obtain information with the highest possible reliability and validity [13]. Data sources are construction experts, both contractors and consultants who are

involved in the implementation of the eight projects under review and have a Certificate of Expert. Questionnaires were collected in each office. The results of the questionnaire are then entered into a table for processing. The number of questionnaires distributed to the project site for 70 respondents and those who returned were 51 respondents. Construction experts include Team Leaders, Project Managers, Site Engineers, Quality Controls, Inspectors, Architects, Civilian Experts, Structural Experts and field supervisors.

2.3. Reasearch Variable

To analyze the data obtained from the numbers. Because data processing uses statistics, the data must be classified into certain categories using certain tables to make it easier to analyze using statistical data analysis programs [14]. The variables used in this study are increasing consistency in implementation (Y1), improving project quality (Y2), making implementation more efficient (Y3), Reducing the project cost (Y4), Improving the way of working (Y5), Easier control (Y6). Human factors are unskilled labor (X1), uneven distribution of labor (X2), Supervision that is not in time (late) (X3), Limited supervisors / foremen (X4), experts from unskilled sub contractors (X5), inexperienced field supervisors (X6). Professional management factors consist of imperfect project planning and scheduling (X7), poor information dissemination to the parties involved (X8), poor coordination between the parties involved (X9), Slow decision-making (X10). Design factors and design documentation and documentation consisting of a non-integrated field documentation system (X11), Specifications are unclear / difficult to understand (X12), Unclear working drawings (X13), Slow revising and redistribution of working drawings (X14), Design changes (X15), Inadequate design (X16). Implementation factors, too many overtime hours for labor in the field (X17), incorrectly using the implementation method (X18), limited equipment/ machines (X19), improperly choosing tools/ ineffective equipment (X20), equipment is not feasible used (X21) and Poor site layout (X22). External factors, field conditions (X23), weather (X24), damage due to the third parties (X25). Expectations are customer focus (X26), leadership (X27), personnel involvement (X28), process approach (X29), systems approach to management (X30), continuous improvement (X31), factual approach to decision making (X32), Mutual supplier relationship (X31). Section 3 Time required to complete the application (X32), Too much paperwork (X33), Time required to write writing (X34), Time required to write manual (X35), High cost for the implementation (X36), time required in examining work according to the audit system (X37), High costs in maintaining the system according to requirements (X38), Evaluation of supervision has not been carried out thoroughly (X39), Lack of information sources (X40), Understanding of leaders who have not reached all personnel (X41), Commitment from the leader has not been followed up with work programs (X42), Inconsistent work program supervision (X43), Difficulty interpreting standards (X44), Lack of collaboration with auditors (X45) and unclear operational process standards (X46).

2.4. Data analysis technique

Before the multiple linear regression analysis is carried out, the data validity test and the data reliability test are being conducted first. Before the multiple linear regression analysis is carried out, the data validity test and the data reliability test are conducted first. The data validity test is to assess whether the accuracy of the measuring instrument used is correct or in accordance with what should be measured.

3. Result And Discussion

3.1. Respondent characteristics

The results of research on the characteristics of the eight respondents (8) the number of road projects to the positions in project implementation, education, length of work at the company and work experience are charted as in Figure 2. From the figure, it can be seen that the filling of the questionnaire is dominated by Engineering Supervision with a percentage of 21.57%, then Site Engineer with a percentage of 15.69%, project manager with a percentage of 13.73%, Quantity Control and field implementers with a percentage of 11.76%, Material Engineering with a percentage of 9.80%, and Surveyor with a percentage of 3.92. %.

The Education of respondents is dominated by bachelor degree majoring in civil engineering with a percentage of 94.12%, then those with associate degree Diploma 3 (D3) in civil engineering with a percentage of 3.92% and Diploma 4 (D4) in civil engineering with a percentage of 1.96%. The length of work of respondents in the company between 5 years to 9.9 years was 64.71%, then more than 10 years was 25.49%, and between 1 year to 4.9 years was 9.8%. The Work experience of respondents was dominated between 6 years and 10 years was 69%, between 1 year and 5 years was 27% and who had work experience of more than 10 years was 4%.

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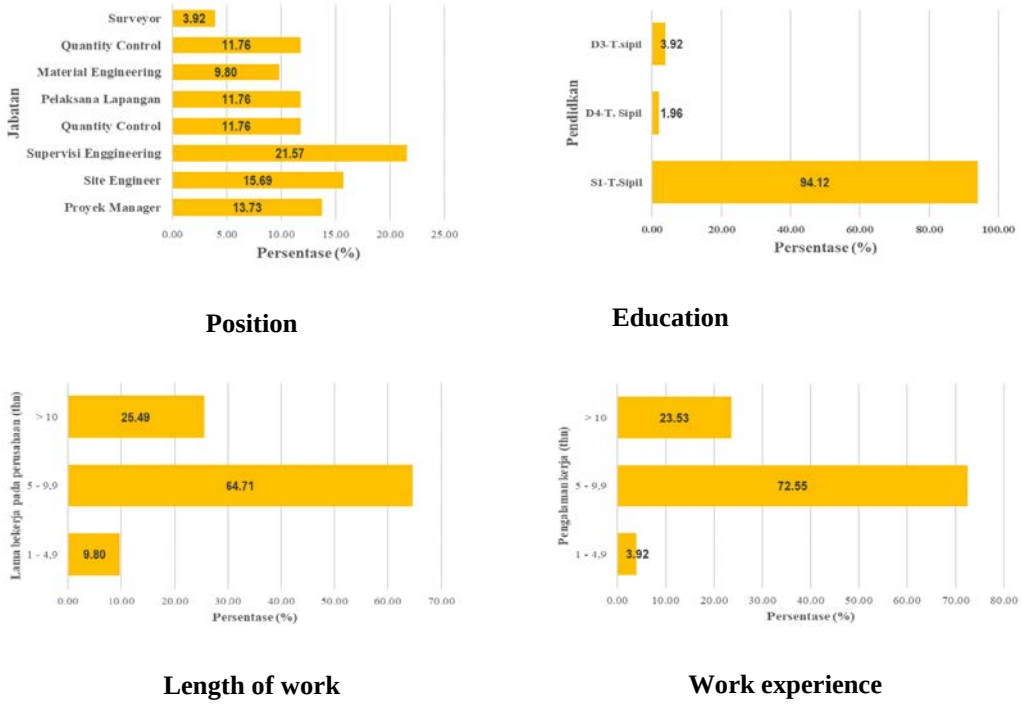

Position **Education**

Length of work **Work experience**

Figure 2. Respondent characteristics

3.2. Results of The Validity Test and Reliability Test

A validity test is a test of the accuracy or accuracy of a measuring instrument in measuring what we want to measure, in an easy-to-understand sense. The validity test is a test that aims to assess whether a set of measuring instruments measures exactly what should be measured. While the reliability test is an index that shows the extent to which measuring instruments can be trusted or reliable. If a measuring device is used twice to measure the same indication and the measurement results obtained are relatively consistent, then the measuring device is reliable. In other words, reliability shows the consistency of a measuring device in measuring the same indication. From the results of the reliability test, it was obtained that the Cronbach's Alpha value was 0.967 with the number of data or the number of question items as many as 54. Because the Cronbach's Alpha value obtained was above 0.600, it can be concluded that the answers given by the workers were good, so that further data analysis could be carried out.

3.3. Analysis of Understanding The Application of Quality

Analysis level of understanding of construction experts to the application of the quality of construction work, analyzed towards (a) improving consistency in implementation, (b) improving project quality, (c) making implementation more efficient, (d) reducing project costs, (e) improving working methods, (f) easier control. The results of data processing with multiple regression analysis using the SPSS program, obtained 30 variables that affect the understanding of construction experts on the application of construction quality.
Improving consistency in the implementation

a. Analysis of understanding

Regression analysis for variables increases consistency in implementation (Y_1) is overall influenced (100%) by human factors, professional management, design and documentation, implementation and external factors. The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y_1.
Where the sub-variables of human factors are unskilled labor (X_1), uneven labor distribution (X_2), limited supervisors / foremen (X_4), experts from unskilled sub contractors (X_5). The sub-variables of professional management, are imperfect

project planning and scheduling (X_7), slow decision-making (X_{10}). The sub-variable of design and documentation is inadequate design (X_{16}). The sub-variables of the implementation are too many overtime hours for labor in the field (X_{17}), limited equipment / machines (X_{19}), poor site layout (X_{22}). Sub factors from external factors are the condition / situation in the field (X_{23}) and weather (X_{24}). while the internal factors are the situation in the field (X_{23}), weather (X_{24}), customer focus (X_{26}), personnel involvement (X_{28}), systems approach to management (X_{30}), factual approach in decision making (X_{32}), mutual supplier relationship (X_{33}). with the following equation :

$$Y = 2{,}249 + 0{,}834\ X_1 - 1{,}016\ X_2 + 0{,}186\ X_4 - 0{,}535\ X_5 + 0{,}983\ X_7 - 1{,}314\ X_{10} + 1{,}346\ X_{16} + 0{,}190\ X_{17} + 1{,}009\ X_{19} - 1{,}178\ X_{22} - 0{,}062\ X_{23} - 0{,}603\ X_{24} - 0{,}181\ X_{26} - 0{,}618\ X_{28} - 0{,}433\ X_{30} + 1{,}056\ X_{32} + 0{,}643\ X_{33}$$

F count = 6.886 and $R^2 = 1$

Analysis the level of understanding

The results of the analysis level understanding of construction experts on the application of construction quality also show a significant level of understanding. This can be proven by the regression analysis that has been conducted, obtained the value of the coefficient of determination (R Square) variable "Application Quality of Construction Work in Improving Consistency of Implementation" (Y) can be explained as much as 100% by variations of the value of the variable "Time", "Cost", "Standard Operations ",“ Leadership Commitment ”and“ Work Program Supervision ”(X). The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y.

Furthermore, for the t test or partial test where the significance value received is <0.05, the X variable which affects the Y variable is only the variables X_{43}, X_{44}, X_{45}, X_{47} and X_{48}. Where the variable X is Understanding of leaders who have not reached all personnel (X_{43}), Commitment from the leader has not been followed up with work programs (X_{44}), inconsistent work program supervision (X_{45}), Lack of collaboration with auditors (X_{47}), unclear operational process standards (X48). From the regression results, the following equation is obtained:

$$Y = 4{,}000 - 2{,}999\ X_{43} + 2{,}999\ X_{44} + 1{,}852\ X_{45} - 1{,}999\ X_{47} + 3{,}607\ X_{48}$$

F count : 1.961 and $R^2 = 1.000$

b. Improve project quality

Analysis of Understanding

From the regression analysis, the value of the coefficient of determination (R^2) was obtained, it is shown that the variation value from the variable "Improving the Quality of the Project" (Y_2) can be explained as much as 100% by the variation value of the variables "Human Factors", "Professional Management Factors", "Design and Documentation", "Implementation" and "External Factors" (X). The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y. Where the variable X are unskilled labor (X_1), uneven ldistribution of labor (X_2), limited supervisors / foremen (X_4), experts from unskilled sub contractors (X_5), imperfect project planning and scheduling (X_7), Slow decision-making (X_{10}), Inadequate design (X_{16}), Too many overtime hours for labor in the field (X_{17}), Limited equipment / machines (X_{19}), Poor site layout (X_{22}) , Field conditions / situations (X_{23}), Weather (X_{24}), Customer focus (X_{26}), Personnel involvement (X_{28}), Systems approach to management (X_{30}), factual approach to decision making (X32), Mutual supplier relationships (X_{33}). The regression equation obtained is as follows :

$$Y = 1{,}497 + 1{,}003\ X_1 - 1{,}258\ X_2 + 0{,}271\ X_4 - 0{,}725\ X_5 + 1{,}538\ X_7 - 1{,}531\ X_{10} + 1{,}247\ X_{16} + 0{,}483\ X_{17} + 1{,}233\ X_{19} - 1{,}442\ X_{22} - 0{,}222\ X_{23} - 0{,}572\ X_{24} - 0{,}250\ X_{26} - 1{,}226\ X_{28} - 0{,}559\ X_{30} + 1{,}402\ X_{32} + 1{,}116\ X_{33}$$

F count = 7.759 dan R^2 =1.000

Analysis the level of understanding

The results of the analysis level of understanding of construction experts on the understanding of the application of construction quality on road project are as shown in table 7. From the results of the regression analysis table 7, the coefficient of determination (R Square) shows that the variation in the value of the variable "Implementation of the Quality

of Construction work in Improving Project Quality" (Y) can be explained as much as 90.4% by the variation in the value of the variable "Time", "Cost" , “Operational Standards”, “Leadership Commitment” and “Work Program Supervision” (X). The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y. Furthermore, for the t test or partial test where the significance value received is <0.05, the X variable which affects the Y variable is only the variables X_{43}, X_{44}, X_{46} dan X_{47}. Where the variable X is Understanding of leaders who have not reached all personnel (X_{43}), Commitment from the leader has not been followed up with work programs (X_{44}), inconsistent work program supervision (X_{45}), Lack of collaboration with auditors (X_{47}), unclear operational process standards (X_{48}). the following equation of regression :

$Y = -4{,}333\ X_{43} + 3{,}167\ X_{44} + 2{,}500\ X_{46} – 1{,}833\ X_{47}$.

F count= 22.455 and R^2 = 0.904

c. Making the Implementation More Efficient

Analysis of Understanding

From the results of regression analysis, the coefficient of determination (R2) shows that the variation in the value of the variable "Quality Application of Construction Work in Making Implementation More Efficient" (Y) can be explained as much as 81.5% by the variation in the value of the variable "Time", "Cost", " Operational Standards "," Leadership Commitment "and" Work Program Supervision "(X), while the rest is explained by other variables outside the model under study. The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y. Furthermore, for the t test or partial test where the significance value received is <0.05, the X variable which affects the Y variable is only the variables X_{43} dan X_{44}. Where the variable X is Understanding of leaders who have not reached all personnel (X_{43}), Commitment from the leader has not been followed up with work programs (X_{44}). The regression equation obtained is as follows :

$Y = 1{,}333 - 2{,}333\ X_{43} + 2{,}667\ X_{44}$

F count = 10.532 and R^2 = 0.815

Analysis the level of understanding

In the analysis level of understanding, the significant value exceeds 0.05, resulting in there is no single variable that affects making implementation more efficient.

d. Reducing Project Costs

Analysis of Understanding

One of the parameters in understanding the application of quality in road construction operations is to reduce project costs. The results of the regression analysis show the characteristics that affect the level of understanding of construction experts on the application of quality construction work, especially in reducing project costs, which are time, cost, operational standards, leadership commitment, and work program supervision. The results of the regression analysis of the coefficient of determination (R2) show that the variation in the value of the Reducing Project Cost (Y) variable can be explained as much as 100% by the variation in the value of the variables "Time", "Cost", "Standard Operating", "Leadership Commitment" and "Program Supervision. Work ”(X). The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y. Furthermore, for the t test or partial test where the significance value received is <0.05, Where the variable X are the time needed to complete the implementation (X_{34}), too much writing work (X_{35}), the time needed to write writing (X_{36}), the time needed to write the manual (X_{37}), the time used in checking work according to the audit system (X_{39}), high costs in maintaining the system according to requirements (X_{40}), Lack of information sources (X_{42}), understanding of the leaders that has not reached all personnel (X_{43}), Commitment of the leaders has not been followed up with work programs (X_{44}), Difficulty interpreting standards (X_{46}), unclear operational process standards (X_{48}). the following equation of regression :

$Y = 4{,}000 - 1{,}000\ X_{34} + 1{,}000\ X_{35} - 1{,}000\ X_{36} + 1{,}000\ X_{37} - 1{,}000\ X_{39} + 1{,}000\ X_{40} + 2{,}000\ X_{42} + 2{,}000\ X_{43} - 3{,}000\ X_{44} - 2.000\ X_{46} + 1{,}000\ X_{48}$

F count = 4.296 and R^2 = 1.000

Analysis the level of understanding

In the analysis level of understanding, the significant value exceeds 0.05, resulting in there is no single variable that affects making implementation more efficient.

e. Improving way of working

Analysis of Understanding

From the results of the Regression Analysis, the coefficient of determination (R Square) shows that the variation in the value of the variable Improving the Way of Working "(Y) can be explained as much as 100% by the variation in the value of the variable" Human Factors "," Professional Management Factors "," Design and Documentation ", "Implementation" and "External Factors" (X). The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y. Where the variable X are Unskilled labor (X_1), uneven distribution of labor (X_2), limited supervisors / foremen (X_4), experts from unskilled sub contractors (X_5), imperfect project planning and scheduling (X_7), Slow decision-making (X_{10}), Inadequate design (X_{16}), Too many overtime hours for workers in the field (X_{17}), Limited equipment / machines (X_{19}), Poor site layout (X_{22}), field conditions / situations (X_{23}), Weather (X_{24}), Customer focus (X_{26}), Personnel involvement (X_{28}), Systems approach to management (X_{30}), Factual approach to decision making (X_{32}), Mutual supplier relationships (X_{33}). the following equation of regression :

$$Y = 4{,}333 + 0{,}408\ X_1 - 0{,}254\ X_2 + 0{,}405\ X_4 - 0{,}533\ X_5 + 0{,}056\ X_7 - 0{,}240\ X_{10} + 0{,}549\ X_{16} - 0{,}126\ X_{17} - 0{,}083\ X_{19} + 0{,}022\ X_{22} - 0{,}038\ X_{23} - 0{,}309\ X_{24} + 0{,}043\ X_{26} - 0{,}274 X_{28} - 0{,}158\ X_{30} + 0{,}390\ X_{32} + 0{,}045\ X_{33}$$

F count = 8.742 and R^2 = 1.000

Analysis the level of understanding

The results of the regression analysis on the level of understanding of construction experts as in table 10 can be seen that the Coefficient of Determination (R2) shows that the variation in the value of the variable "Quality Application of Construction Work in Improving Working Methods" (Y) can be explained as much as 100% by variations in the value of the variable "Time", "Cost", "Standard Operating", "Commitment of Leaders" and "Supervision of Work Programs" (X). The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y.

The level of understanding of construction experts in table 11 is analyzed

Furthermore, for the t test or partial test where the significance value received is <0.05, the X variable which affects the Y variable is only the variables X_{43} X_{44}, X_{46} dan X_{47}, Where the variable X is The understanding of the leader that has not reached all personnel (X43), Commitment of the leaders has not been followed up with work programs (X_{44}), Inconsistent work program supervision (X_{45}), Lack of collaboration with auditors (X_{47}). The regression equation is as follows:

$$Y = 4{,}000 - 1{,}999\ X_{43} + 2.000\ X_{44} + 0{,}999\ X_{46} - 0{,}999\ X_{47}$$

f. Easier Control

The results of the Easier Control regression analysis, it can be seen that the coefficient of determination (R^2) shows that the variation in the value of the variable "Application of Quality of Construction Work to Easier Control" (Y) can be explained as much as 100% by the variation in the value of the variable "Human Factor", "Factor Professional Management "," Design and Documentation "," Implementation "and" External Factors "(X). The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y.

Where the variable X is unskilled labor (X_1), uneven labor distribution (X_2), limited supervisors / foremen (X_4), experts from unskilled sub contractors (X_5), imperfect project planning and scheduling (X_7), Slow decision-making (X_{10}), Inadequate design (X_{16}), Too many overtime hours for workers in the field (X_{17}), Limited equipment / machines (X_{19}), Poor site layout (X_{22}) , Field conditions / situations (X_{23}), Weather (X_{24}), Customer focus (X_{26}), Personnel involvement (X_{28}), Systems approach to management (X_{30}), factual approach to decision making (X_{32}), Mutual supplier relationships (X_{33}). The regression equation obtained from the analysis results is as follows:

$Y = 4{,}418 - 0{,}187\ X_1 + 0{,}539\ X_2 - 0{,}249\ X_4 + 0{,}039\ X_5 - 0{,}837\ X_7 + 0{,}463\ X_{10} + 0{,}059\ X_{16} - 0{,}322\ X_{17} - 0{,}194\ X_{19} + 0{,}080\ X_{22} + 0{,}108\ X_{23} + 0{,}193\ X_{24} + 0{,}128\ X_{26} + 0{,}308\ X_{28} - 0{,}017\ X_{30} + 0{,}113\ X_{32} - 0{,}341\ X_{33}$

The results of the analysis of the level understanding, it can be seen that the coefficient of determination (R2) shows that the variation in the value of the variable "Implementation of Construction Work Quality in Easier Control" (Y) can be explained as much as 100% by the variation in the value of the variable "Time", "Cost", " Operational Standards ",“ Leadership Commitment ”and“ Work Program Supervision ”(X). The significance value of the F test = 0.000 <0.05, resulting in the variable X simultaneously has a significant effect on variable Y. Furthermore, for the t test or partial test where the significance value received is <0.05, the X variable which affects the Y variable is only the variables X_{43} X_{44}, X_{46} dan X_{47}, Where the variable X is the understanding of the leader that has not reached all personnel (X_{43} Commitment of the leaders has not been followed up with work programs (X_{44}), Inconsistent work program supervision (X_{45}), Lack of collaboration with auditors (X_{47}). The regression equation is as follows:

$Y = 4{,}000 - 0.999X_{43} + 0.999\ X_{44} + 0{,}999\ X_{46} - 0{,}999\ X_{47}$

g. The obtacles to the application of construction quality

There are 15 (fifteen) questions on the questionnaire for the obstacles to implementing quality management in construction work. The results of the analysis are only 13 variables that have a significant effect on the implementation of construction quality which are the time needed to complete the application (X_{34}), too much writing work (X_{35}), the time needed to write writing (X_{36}), the time needed to write the manual (X_{37}), the time used in checking the work according to the audit system (X_{39}), High costs in maintaining the system according to requirements (X_{40}), Lack of information sources (X_{42}), understanding of the leadership that has not reached all personnel (X_{43}), Commitment of leaders has not been followed up with work programs (X_{44}), Supervision of work programs that are not consistent (X_{45}). Difficulty interpreting standards (X_{46}), Lack of collaboration with auditors (X_{47}), unclear operational process standards (X_{48}).

h. Descriptive Analysis

In this study, apart from analyzing using multiple linear regression analysis, it was also analyzed using descriptive analysis in order to better control the results obtained. The determination of the score in this analysis uses a Likers scale, by giving a score and rating of each respondent's answer. From the analysis, it was found that the level of understanding of construction experts on the implementation of the quality of construction work

The results of the descriptive analysis test show that the variables that most influence the implementation of construction quality (which has a score> 80) are weather, damage due to the third parties, the system approach to management process, continuous improvement, factual approach in decision making, mutual supplier relationships, time necessary to complete the implementation, Inconsistent monitoring of work programs, Difficulty interpreting standards, Lack of cooperation with auditors, Unclear operational process standards.

The level of understanding of construction experts on the Application of Quality of Work, the results of regression analysis and descriptive analysis show weather variables, damage due to the third parties, process approaches, systems approach to management, continuous improvement, factual approach to decision making, mutual supplier relationships, required to complete implementation, inconsistent monitoring of work programs, difficulty interpreting standards, lack of cooperation with auditors, unclear operational process standards.

4. Conclusions

1. The main factors affecting the application of construction quality in road works in Jayapura City are human factors, professional management factors, design factors as well as documentation and maintenance factors.
2. Constraints in implementing the quality of road works in Jayapura City Time required to complete implementation, Understanding of the leadership that has not reached all personnel, Inconsistent supervision of work programs, Difficulty interpreting standards, Lack of collaboration with auditors, unclear operational process standards
3. Strategies that can be recommended in the application of construction quality in the implementation of road works require mastery of Operational Standards, Continuous Improvement, Job Quality Management Systems, Supplier Relations for mutual benefit and the time required to complete the application of quality work.

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