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Variables Study Cause Of Delivery Of The Boyolali Road Improvement - Jrakah / Selo On 2015

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Abstract- Various physical infrastructure activities carried out to improve road performance one of them with improvement and improvement of roads. Package of road improvement activities Boyolali - Jrakah / Selo is worth 19.5 billion more with the type of handling of concrete road pavement + concrete widening + 2 layer overlay over 4 km. However, the timing of the activities specified during the 240 working days is delayed due to various factors. Though this road has a function and a very important role that disrupt the activities of society and the flow of agricultural goods. The purpose of this study is to determine the factors causing the delay of the project Improving the Road of Boyolali - Jrakah / Selo in 2015. The research method used is descriptive approach method. The survey method was conducted to capture the opinions, experiences and attitudes of the respondents on the issues in road improvement project of Boyolali-Jrakah / Selo road in Boyolali Regency through questionnaire and institutional survey. The sample of research using all members of the population is called total sample or census which amounts to 60 respondents. The analysis technique used is factor analysis. While the variables used are labor, materials, equipment, design, planning and implementation, financing, social environment and community and managerial.

Keywords**:** project delays, road improvements, Boyolali-Jrakah road

1. Introduction

As a rapidly growing area of urban development and economy in the field of agriculture, Boyolali Regency continues to improve road infrastructure to support its economic activities smoothly.

Boyolali - Jrakah / Selo road segment is a road segment located on the border area of Boyolali Regency with Magelang regency. This road has linked the western Boyolali Regency which is the agricultural producing center with the urban centers of Boyolali, Magelang regency and other districts so that it has a very high economic role as the main infrastructure of the flow of agricultural goods.

Package of road improvement activities Boyolali - Jrakah / Selo is worth 19.5 billion more with the type of handling of concrete road pavement + concrete widening + 2 layer overlay over 4 km. However, the timing of the activities specified during the 240 working days is delayed due to various factors. Though this road has a function and a very important role that disrupt the activities of society and the flow of agricultural goods.

Project delays cause losses from both the owner, consultant and contractor. For owner of the delay in the implementation of road improvement project Boyolali - Jrakah/

Selo means delayed the project to be handed over. Thus the delay in project implementation will be detrimental to government services to the community because the community is late in enjoying the results of the road improvement and also harming the services that have been made. This loss obviously can not be valued with money and can not be repaid.

The losses for contractors are the increase of operational cost due to the possibility of price increase due to inflation and the increase of labor wage. Besides, this delay resulted in the suspension of contractor capital which may be supposed to be used for other projects. As for the consultant as a result of the delay in the implementation of the road improvement project Boyolali - Jrakah / Selo can result in time losses, due to the project's delays, the consultant will be hampered in working on other projects.

Therefore, it can be formulated the problems that need to be studied in more detail in this research is first, what factors influence simultaneously to the delay of project completion of Boyolali Road Improvement - Jrakah / Selo in Boyolali Regency. Secondly, what factors have a partial effect on the delay in project completion of Boyolali Road Improvement - Jrakah / Selo in Boyolali Regency. Third, what is the most dominant factor for the delay of work on the Boyolali Road Improvement Project - Jrakah / Selo in Boyolali Regency.

While the purpose of this study is the first to analyze what factors are simultaneously affecting the delay in completion of the project Road Improvement Boyolali - Jrakah / Selo in Boyolali Regency. Secondly to analyze what factors influenced partially to the delay in completion of the Road Improvement project Boyolali - Jrakah / Selo in Boyolali Regency. And third to find out one of the most dominant factor to the delay of work on Boyolali Road Improvement Project - Jrakah / Selo in Boyolali Regency.

2. Literature Review

The delay in the project is the time of implementation that can not be utilized in accordance with the plan, causing some activities on the implementation to be delayed or can not be completed exactly according to the planned schedule (Ervianto, 2004). According to Praboyo (1999), the delay in project implementation generally always has a detrimental effect on owners and contractors because the impact of delays is conflict and debate about what and who causes, as well as time demands, and added costs.

According to Levis and Atherley (1996), project delays are often the source of dispute and demand between the owner (owner) and the contractor, so it will be very expensive in terms of both contractor and owner. Project implementation delays also have an impact on losses for all parties involved in the project. The impact of losses that can be experienced by the parties involved in the implementation of construction projects are as follows (Adhiputra et al., 2017); O'brien (1976); Kamaruzzaman (2012); Barie et. al. (1984); Alifen (2000):

a. Contractor

   The delay in the completion of the project resulted in an increase in the overhead of the costs incurred by the company due to increased implementation time.

b. Consultant

Consultants will experience time losses and will be late in working on other projects, if the project implementation is delayed completion.

c. Owner

If the increased package of Boyolali - Jrakah / Selo road activity happens, the use of such facilities and operations will be detrimental to the value of the targeted investment. The flow of people and goods is hampered so that economic activity is disrupted. This loss can not be valued with money and can not be repaid.

Kraiem and Dickman in Proboyo (1999) who stated that the cause of the delay in project implementation are:

1. Delayable project delays (excusable delay)
2. Unpardonable project delay (non excusable delay)
3. Delay of eligible project compensation delay (compensated delay)
4. Project delays that are not eligible for compensation (non compensable delay)
5. Critical or non critical
6. Implementation of progress or occurrence at the same time (concurrent) or non concurrent

Based on 3 main types of delays, the causes of project delays can be grouped as follows (Messah et al., 2013):

1. Non Excusable Delays

   The causes included in this type of delay are:

   a. The identification, duration, and plan of work sequences are incomplete and unstructured
   b. Inaccuracy of manpower planning
   c. Poor labor quality
   d. Delay in the supply of equipment / materials due to contractor negligence
   e. The type of equipment used is incompatible with the project
   f. Slow resource mobilization.
   g. Many of the work that must be repeated / repaired because of defects / wrong
   h. Financial difficulties
   i. Lack of contractor experience
   j. Poor coordination and communication within the contracting organization
   k. Construction methods / techniques of improper implementation / wrong
   l. Working accidents that occur in workers.

2. Excusable Delays

   a. The causes included in this type of delay are:
   b. Unexpected events such as storm floods, earthquakes, landslides, fires, bad weather.
   c. Unstable socio-political environment
   d. Response from surrounding communities that do not support the project

3. Compensable Delays

   a. The causes included in this type of delay are:
   b. Determination of the implementation of a very tight project schedule
   c. Approval of a long work permit
   d. Change the scope of work / construction details
   e. Frequent job delays

f. Delay of meterial supply
g. Insufficient funds from owners
h. The owner's payment system to contractors that do not fit the contract
i. How to inspect / control bureaucratic work by the owner

While Assaf et. al. (1995) divides the causes of project delays from the possible side of the perpetrators are divided into three groups namely from the side of contractors, consultants and owners. Data obtained by distributing questionnaires to contractors, owners, and consultants. The results of the research indicate that the main causes of delays in the project are distinguished as follows:

1. From the Contractor's side
   a. Preparation and approval of shop drawing
   b. Payment from Owner
   c. Design change from Owner
2. From the Consultant side
   a. Financial problems during the project
   b. The relationship between the schedules of different subcontracts in working on the project
   c. The slow decision-making process of the Owner
3. From the Owner side
   a. Design error
   b. Lack of experts

2. Research Methods

If it is reviewed from the method then this research includes descriptive research that is to get the factors that influence the delay of project implementation of road improvement Boyolali-Jrakah / Selo in Boyolali Regency and to determine the most dominant factor influence it.

Descriptive method is a method used to describe or analyze a research result but not used to make wider conclusions (Sugiyono, 2005:21).

This research uses survey method by gathering opinion, experience and attitude of respondent about the problems that exist in road project improvement job Boyolali-Jrakah / Selo in Boyolali Regency, by taking primary data through questionnaires and secondary data from related institutions.

The population in this study were all individuals involved in the implementation of the Boyolali-Jrakah / Selo road improvement project consisting of supervisory consultants, owners and contractors. It also allows people who have held positions as activity leaders, project managers or field managers. population in this study as many as 60 people.

In this study, because the population is relatively small and relatively easy to reach, the authors use the total sampling method or census is a study sample that uses all members of the population.

A census study is a study that takes one population group as a whole and uses a structured questionnaire as a primary data collection tool to obtain specific information (Usman & Akbar, 2008).

The tools used in data collection are questionnaires and interviews to seek or obtain inhibiting factors of workmanship and may affect delays in completion of construction projects, particularly road construction improvements.

The data obtained from the respondents through the questionnaire will be presented into the form table.

1. Calculation of Total Value

   $\sum n = n1 + n2 + n3 + \ldots.. + nn$ (1)

   $\sum n$ = Total Value of each factor

   n = Number of subfactors of each factor

2. Total Calculation

$$\text{Total Score} = \frac{\sum n}{\text{Number of subfactors}} \quad (2)$$

3. Relative Determination Index (RI)

$$RI = \frac{\text{Total Score}}{4 \text{x number of samples}}$$

4. Factor Analysis

   Factor analysis is one of Multivariate statistical analysis techniques that aims to reduce data. The main purpose of this technique is to make a summary of the information contained in a large number of variables into a smaller group of factors.

   Secara umum tahapan dalam analisa faktor adalah sebagai berikut:

   1. Form a correlation matrix, ie a table showing intercolrelation among all observed variables.
   2. Determining the value of KMO (Kaiser-Meyer-Olkin), its value is considered feasible if aiatas 0.50.
   3. Determining the Measure of Sampling Adequnce (MSA), which is feasibility for all correlation matrices of each observed variable for factor analysis. The value (MSA) eligible to be analyzed is 0.50.
   4. Extracting the factors, the extraction criteria used is latent root criterion that is based on eigen value. The methods that can be used in factor extensions include Principal Component Analysis.
   5. Rotating factors. Rotation is intended to facilitate interpretation, the method used in factor rotation is the Orthogonal method of Varimax ration. Based on the method of extraction and rotation method used in this research is Principal Component Analysis - Varimax. Interpret results of factor analysis. Results are seen on factor weight and communal value.

The variables analyzed in this study are divided into dependent and independent variables. Dependent variable (Y) is the variable that is influenced or which become due to the existence of independent variable (Sugiyono, 2008). In this study the dependent variable is the delay of the project. The independent variable (X) is the variable that

influences or causes the change or the incidence of the dependent variable (Sugiyono, 2008). The independent variables are: labor; material; equipment; design planning and execution; financing; social environment; and managerial societies.

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