



## Review Of Project Delay Factors On Project Cost Explanation : Lampung Sugar Factory – Mill House

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### Abstract

The problem of delays in the construction industry is a national phenomenon and Jakarta is no exception. The main purpose of this study is to identify the factors of project delays and their effects on cost overruns for building projects in Jakarta. ) contractor experience, (3) work methods (4) material delays, (5) tool mobilization (6) precast material fabrication (7) work quality (8) worker quality (9) field cashflow (10) subcontractors. Then an analytical survey was conducted which was distributed to 26 respondents. The ten delay factors were analyzed to determine their effect on project cost overruns. From the results of the analysis it can be seen that: (1) office overhead (2) contractor experience, (3) work methods (4) material delays, (5) tool mobilization (6) precast material fabrication (7) work quality (8) worker quality (9) field cashflow (10) Subcontractors have their respective weights of influence on project cost overruns

**Keywords : Delay factor, Cost swelling, Construction industry.**

### Introduction

Each construction project usually has a specific implementation plan and implementation schedule, when the project implementation should begin, when it must be completed and how the project will be carried out, and how to provide resources. Making plans and schedules for project implementation always refers to the conditions of assumptions and forecasts that existed at the time the plans and schedules were made, therefore problems will arise if there is a discrepancy between forecasts and assumptions with actual reality. The general impact that often occurs is the delay in project implementation time, in addition to increasing project implementation costs.

The process of implementing a project consists of many interrelated activities. Delays that occur in one or more of these activities can cause delays in the overall project. Project delays can eventually lead to many negative sides, for example disputes between contractors and owners and decreased credibility of contractors as well as cost overruns. In fact, this often happens, so it is necessary to conduct a more in-depth analysis as a precautionary measure.

Project delays can come from service providers (contractors), service users or other parties that have an impact on adding time and projects, it is necessary to control the costs to be incurred so as not to exceed the predetermined budget. Examples of projects that experienced delays such as the Sugar Factory Project – Mill House, initial plan 15 months, realization 17 months.

### Methodology

#### Types of research

This research is a type of multi-criteria quantitative research, namely research that takes a sample from a population and uses a questionnaire as a data collection tool. There are three important requirements in conducting research activities, namely: Systematic, if the research is carried out according to a certain pattern, from the simplest to the most complex until the objectives are achieved effectively and efficiently. Planning, if the research is intentional and the implementation steps have been thought out beforehand. Following the scientific concept, if from the beginning to the end the research activity follows the predetermined methods, namely the principle of acquiring knowledge.



The research method is a science that studies research methods to find, collect, develop, analyze and test the truth, carried out carefully, systematically and based on knowledge with the scientific method. In this research, data collection is done by collecting primary data, which is directly related to respondents by giving several questions in the form of questionnaires compiled by researchers. The research methodology that the researcher uses is survey research with an explanative type of research with audience studies.

#### Framework

The framework of thought that will be carried out in this research is presented in the form of the following flow chart:

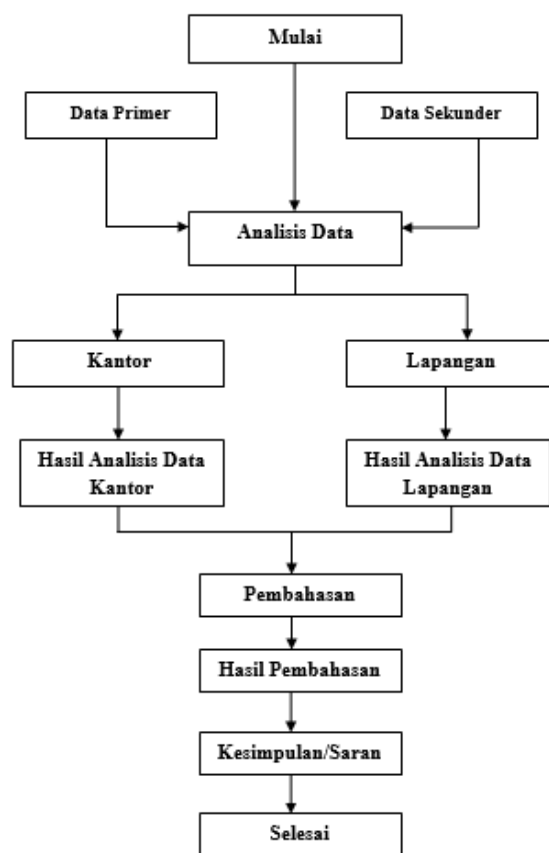


Figure 1: frame of mind

#### Result

##### Research data

For this discussion, a questionnaire was held for the parties working on the Lampung Sugar Factory – Mill House project as a reference data to be used as data analysis.

##### Primary data

To find out the factors of delay in a project, it is necessary to distribute questionnaires to the respondents directly on the job so as to produce data that will be used for analysis. The following are the results of questionnaire data obtained in research at the Lampung Sugar Factory project - Mill House.

Table 1: Results of office respondents' questionnaires (source: questionnaire results)

No.	NAMA RESPONDEN	KELOMPOK	FAKTOR									
			X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
1	Sandi M.	Kantor	4	1	2	4	3	4	3	4	4	4
2	Reni Handayani	Kantor	3	2	3	4	3	3	3	4	5	4
3	Fajar Reza Laksana	Kantor	4	1	3	4	4	4	4	4	4	4
4	Grace Septiana	Kantor	3	1	4	4	3	4	5	5	5	4
5	M. Gana Nuari P.	Kantor	4	1	3	5	4	4	4	4	5	4
6	Ibu Yeti	Kantor	4	2	3	4	4	4	4	4	4	4
7	Ibu Anggaraeni	Kantor	5	1	3	4	3	3	3	3	4	3
8	Abigail	Kantor	4	2	4	4	4	4	5	5	5	3
9	Herlina	Kantor	5	2	3	4	4	4	3	5	4	4
10	Ibu Irvie Louis	Kantor	4	2	3	4	4	4	4	4	4	4
11	Riska Dilla	Kantor	4	2	4	5	3	4	4	5	4	5
12	Jeanny	Kantor	4	3	4	5	5	4	4	5	5	5
13	Bilal	Kantor	4	1	3	5	5	5	3	4	4	4

Table 2: The results of the field respondents' questionnaires (source: questionnaire results)

No.	NAMA RESPONDEN	KELOMPOK	FAKTOR									
			X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
1	Bpk. Heru	Lapangan	4	2	3	5	4	5	4	4	5	3
2	Bpk. Sardun	Lapangan	2	4	4	4	4	4	3	3	5	3
3	Bpk. Darmono	Lapangan	3	3	3	4	4	4	4	4	5	3
4	Tri Angga	Lapangan	4	1	2	4	3	4	4	5	5	4
5	Gabe Hutasoit	Lapangan	3	2	3	5	3	4	4	4	4	4
6	Sultan Abdul Fadillah	Lapangan	2	2	3	4	4	4	4	5	5	4
7	Albandi Susanto	Lapangan	4	3	2	5	5	4	4	5	5	4
8	M. Tahid Angga	Lapangan	3	3	3	4	4	4	4	4	5	4
9	Bpk. Budiyo	Lapangan	3	1	3	4	3	4	3	4	5	3
10	M. P. Setiawan	Lapangan	3	4	3	4	4	3	4	5	5	4
11	Fauzi Nuhadi	Lapangan	3	1	4	4	4	4	4	4	5	4
12	Hidayat	Lapangan	3	1	2	5	3	4	4	5	5	5
13	Aditya	Lapangan	3	2	2	4	3	3	3	3	5	3

Information :

X1 to X10: Factors of delay

X1 = Overhead office

X2 = Experience

Contractor

X3 = Working Method

X4 = Delay

Material

X5 = Fabrication

Precast Material

X6 = Quality

Work

X8 = Quality



Worker

X9 = Cashflow

Field

X10 = Subcontractor

### Discussion of Data Analysis Results

In the discussion section of the results of this data analysis, it aims to find out further what the results of data analysis are, and what are the obstacles and delay factors in accordance with the results of the data analysis above will be discussed in more detail as follows:

From the results of office and field data analysis, the following analysis results are obtained:

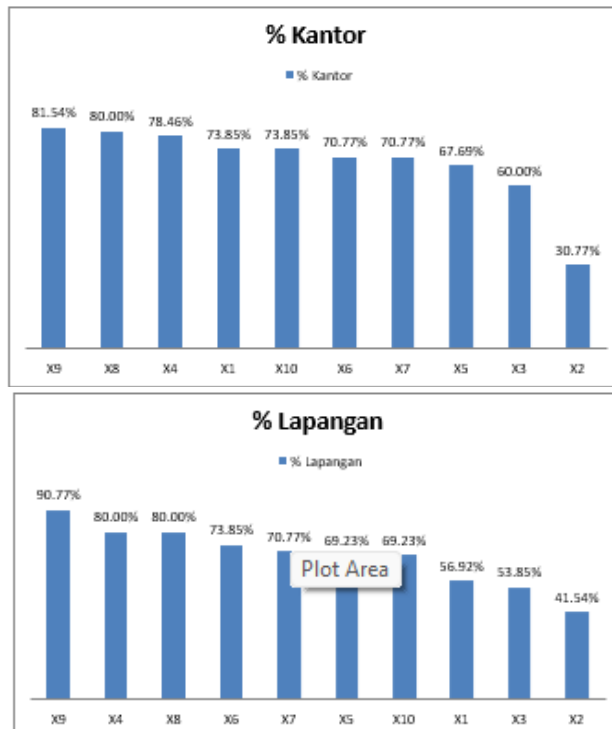


Figure 2: Graph of office and field % ranking

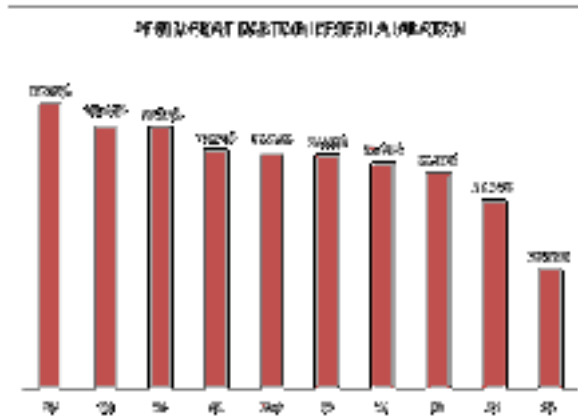


Figure 3: Graph of the % of Delay Factors in the Lampung Sugar Factory Project – Mill House

Rank 1: Field cashflow factor / X9

According to office and field respondents, the cash flow factor in the field is the main factor that greatly influences the delay in the Sugar Factory project. When viewed from the percentage of 81.53% according to

office respondents and 90.77% according to field respondents. This states that the current obstacle is the non-current cash flow in the field. Payments for project costs that are sometimes not smooth, such as payments for foreman/workers will affect performance and affect the slow progress of work, resulting in delays. According to respondents, both office and field respondents, cash flow in the field is an obstacle to the running of the Sugar Factory project so that foremen and workers often complain and demand and even strike, this is very triggering on field progress that does not go as planned and greatly affects delays so that when the deadline will take a lot of time causing worker Overtime, unexpected expenses will be more and more, and this will cause project cost overruns.

Rank 2: Worker quality factor / X8

In the second rank, according to office respondents, the quality of workers also has an effect on project delays. If it is seen from the percentage, 80% of the worker factors are considered to have an influence on project delays. If the worker is not competent in performing the task, then a work progress will be difficult to achieve. Poor quality of workers also affects work results that are not in accordance with achievement standards and can lead to an increase in the frequency of rework because they are not in accordance with achievement standards. In this case, rework due to poor quality of workers will require additional costs for both labor, material and indirect costs. For example, when erection of steel, workers do not understand how to work and how to install steel so that the work needs repetition and re-installation, also causes damage to the material and ultimately affects the repair work and replacement of goods. Basically all repetitions/repairs due to defects/wrong require additional costs for both material and labor. That means the project is experiencing cost overruns.

Rank 3: Material delay / X4

In the third rank, according to office respondents, the factor of material delays also affects project delays. When viewed from the percentage of 79.23% material delays do have an effect. Material delays often occur because one of them is far enough mobilization, because the project is in Lampung, so there are often problems with materials sent from Jakarta starting from the delivery schedule which is often not on schedule, obstacles at the port such as ship schedules that like to change due to weather factors. so that material delays often occur in the field, this causes slow work progress. Delays in the provision of tools and materials on the project can be due to delays in delivery by suppliers, difficulty in obtaining them. and the lack of the material itself. Provision of tools and materials that are not in accordance with the needs and planned time will make worker productivity decrease due to the number of idle hours that hampers the pace of work.

Rank 4: Material fabrication factor / X6

In the material fabrication factor, it is often the case that the results of the fabrication of fabricated materials both in the workshop and in the subcontractor often experience fabrication errors so that additional costs and time are needed for repairs in the field. For example, such as drilling a nut hole that does not match the number in the picture, this requires field repair. Another example that often occurs during installation in the field, the size of the steel is often not according to the drawing so it needs to be cut and re-welded, this adds to the cost and slow work time.

Rank 5: Subcontractor factor /X10

In this Lampung Sugar Factory project, it requires several sub-contractors in several ways. One of them is steel fabrication sub-con. What often happens is that subcontractors often do not complete the work according to plan, such as not being on schedule which eventually affects the time delay. This affects the delay in material delivery .

Rank 6: Work quality factor / X7

The quality of work is influenced by the quality of workers. If the quality of workers is good then the quality of work. In this work quality factor, which often occurs, such as the results of painting in the field that are not good, so that repainting often occurs and this requires additional costs and time.

Rank 7 : Tool mobilization factor / X5

The tool mobilization factor with a percentage of 68.46% is quite influential. Because the sugar factory project is located a bit in the interior, mobilizing tools is quite difficult to reach. This makes it difficult to mobilize equipment to the Sugar Factory project. Such as mobilization of cranes, and other heavy equipment. This has an effect on project delays.

Rank 8 : Office overhead factor / X1

The office overhead factor has an effect of 65.38 % . Office overhead here means overhead costs due to work that is not achieved with the maximum. Office employees work more than working hours, so it affects

overtime costs such as overtime pay, increased office electricity usage, also for printing paper etc. can cause cost overruns. Office overhead costs also affect financial stability so that this causes office and field cashflows to be not smooth. For example, supplier payments that are not on time result in old materials. And things like the pay of the foreman and the workers are included in the effect of office overhead

Rank 9 : Working Method / X3

The work method factors referred to here are such as the duration of the work, the way of working and the work plan which are considered not so influential because the work method is considered good and does not have a significant effect on the project and project delays.

Rank 10 : Contractor Experience / X2

The contractor's experience factor is considered not to be an influential delay factor, because PT. Jatim Bromo Steel is considered to have had sufficient experience in carrying out a project.

## Conclusion

Based on the results of research and discussion in the previous chapter, the following conclusions are obtained: The most influential delay factors in the Sugar Factory – Mill House project are X9 (cashflow) of 86.15% and the least influential factor is X2 (Contractor Experience) of 36.15%. From the results of the study, it was found that the respondents' opinion that the biggest influence on cost delays was the X9 factor (field cashflow) of 86.15% and the smallest effect according to the respondents was the X2 factor (contractor's experience) of 36.15%.

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