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The Effect of Delay on the Implementation Cost: Case Study on The West Java Government Office Building Project

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ABSTRACT

The delay of work in the project will affect the duration and cost of project implementation. So far, the effect of delays on project implementation costs has not been applied in project control. The majority of project control is only carried out with the S curve of the project cost weights, which only observes the costs that have been implemented in the project but cannot observe the effect of the implementation and delay of work activity on the cost of project implementation. This study, Tracking Progress on the Microsoft project on the duration of work every week from the first week to the last week on the West Java Government Office Building Construction Project. Simulation tracking will show the increase or decrease in costs due to a project activity. Simulation Tracking on the West Java Government Office Building Project, there is a difference in the total duration of time, which has changed from 49 days to 88 days with a difference of 39 days, while for the planned project implementation costs of Rp.11,017,969,680-, it becomes Rp.11,368,005,964-,.

Keywords: Construction Management, Delay, Tracking

INTRODUCTION

Construction work, in general, is a job that is done to realize a building. The buildings in question are buildings, bridges, dams, etc. According to the Department of Public Works, the building must have been built at a predetermined location. On the other hand, UU No. 2 of 2017, which the government has stipulated, mentions construction services that explain that construction work is the whole or part of activities that include the construction, operation, maintenance, demolition, and rebuilding of a building. Before carrying out development, of course, a plan must be prepared for the activities carried out. This is based on considerations from various aspects so that project implementers can carry out work systematically and minimize errors that impact work time, causing delays. Multi-story construction projects have time, cost, and quality limitations that must be met and regulated in contract documents. This is based on the definition of the project itself, which is a series of work that must be completed within a limited period (Warsika, 2017, p. 1). To carry out construction work on time, there are several very influential factors, namely cost, time, and quality. If the work time increases, there will be

an increase in expenses if using the same rate (Soeharto, 1999, pp. 2-3). The delay resulted in high costs and fines that must be met due to delays in the construction work. This has an impact that often occurs, such as a decrease in quality due to acceleration of work from the specified schedule so that there is the possibility of violating technical matters to reduce project delays.

Based on the results of observations made by researchers on the West Java Government Office Building project, the reality on the ground shows that delays in material delivery to the project, changes in work details at the time of implementation, and weather factors cause delays. This, of course, significantly impacts the implementation time and the cost of the work. Rescheduling needs to be done if there is a change in duration due to delays in a job (Havniansyah et al., 2016, p.8). One of the software that can help in rescheduling is Microsoft Project. Microsoft project is a planning system that can assist in scheduling a project or a series of works and can monitor the use of human resources and equipment (Kusrianto, 2008, p.2). The method that can be applied to Microsoft projects is progress tracking. Progress tracking is a schedule tracking method using a comparison between the planned schedule and actual progress. Progress tracking on Microsoft Project shows that job delays can impact other work if the increased time to complete a job will result in increased project costs (Pragasi, 2016, p. 2).

METHOD

The research design used is a quantitative descriptive research design. Descriptive quantitative research aims to explain existing phenomena by processing data to test hypotheses related to conditions in the field at the time of research to get the final results (Yusuf, 2016, p. 58). This last result will be used as material to conclude a problem in the project.

The building used as the research location is the West Java Government Office Office Building Project on LLRE Martadinata St. 54, Citarum, Bandung Wetan, Bandung, West Java. The West Java Government Office building project is a building that has eight floors with one basement. The land area of the building construction project is approximately 4,440 m^2, with a building area of 11,950.36 m^2.

This research uses two types of data, namely primary data in the form of data obtained as a result of observations while in the field and secondary data in the form of project documents in the format of project implementation schedules, daily reports, weekly reports, budget drafts, contract addendums, and curves. Obtained indirectly through contractor intermediary media. The other secondary data were obtained from literature books with various reference books and journals related to this final project research. Processing techniques and data analysis tools in this study use progress tracking with the help of the Microsoft Project.

RESULTS AND DISCUSSION

Before conducting research, collect and process data that is used as a reference for conducting research. Calculating labor requirements and material prices are carried out

on each work item by looking at the work volume data in the budget plan and the planned duration of the work item on the s-curve agenda. For example, on the 1st-floor column ironwork, from the budget plan data, this work has a volume of 1603.24 kg, and the duration of this work is six days.

Table 1. Analysis of the calculation of worker requirements and prices

1 kg	Twisted Steel Work			
Material				
Twisted steel bar	1.0500	kg	Rp 13,300	Rp 13,965
Rebar tie wire	0.0150	kg	Rp 21,600	Rp 324
			TOTAL (1)	**Rp 14,289**
Upah				
Worker	0.0070	Oh	Rp 171,000	Rp 1,197
Steelworker	0.0070	Oh	Rp 180,000	Rp 1,260
Foreman	0.0007	Oh	Rp 190,000	Rp 133
Mandor	0.0004	Oh	Rp 200,000	Rp 80
			TOTAL (2)	**Rp 2,670**
			TOTAL (1)+(2)	**Rp 16,959**

Next, to calculate the needs of workers on the job is to multiply the coefficient value by the job's volume and then divide it by the plan's duration (0.007x1603.24):6 = 1.87. So the need for workers on the 1st-floor column steel work is 1.87 people/day, and workers' wages are 1.87 x 6 x Rp.171,000,- = Rp.1,918,620,- and the material value is Rp.14,289 x 1603.24 = Rp.22,908,696,-.

After all the data is obtained, the research can be started. The first step is to make a rescheduling that begins by entering data from the Budget Plan in the form of the type of work item along with its sub-jobs and the duration of each work item according to the s curve plan, then entering predecessors to start scheduling according to the S curve plan.

Column predecessor data is entered based on the order in the S curve plan. The next step is to enter data in the resource sheet. The information that must be entered into the resource sheet is the value and need for materials, craftsmen, and workers, along with wages per 8 hours of work or day.

Table 2. Rescheduling Result

Task Name	Duration	Cost
WEST JAVA GOVERNMENT OFFICE BUILDING PROJECT	**49 days**	**Rp11,017,969,680**
STRUCTURAL WORKS	**49 days**	**Rp11,017,969,680**
1ST FLOOR	**7 days**	**Rp58,671,917**
COLUMN WORKS	**7 days**	**Rp58,671,917**
Steel Works BJTS-420	6 days	Rp27,195,516
Column Formworks H800	6 days	Rp21,722,301
Concrete Works Fc=30 Mpa	2 days	Rp9,754,100
2ND FLOOR	**14 days**	**Rp400,403,606**
COLUMN WORKS	**9 days**	**Rp187,974,085**
Steel Works BJTS-420	6 days	Rp67,397,299
Column Formworks H800	6 days	Rp94,133,857
Concrete Works Fc=30 Mpa	3 days	Rp26,442,930
BEAM WORKS	**7 days**	**Rp109,133,323**
Steel Works BJTS-420	5 days	Rp45,752,333
Beam Formworks H800	5 days	Rp44,848,910
Concrete Works Fc=30 Mpa	5 days	Rp18,532,080
SLAB WORKS	**9 days**	**Rp103,296,197**
Steel Works BJTS-420	5 days	Rp29,584,505
Slab Formworks H800	5 days	Rp55,730,872
Concrete Works Fc=30 Mpa	5 days	Rp17,980,820
3RD FLOOR	**28 days**	**Rp1,701,456,515**
COLUMN WORKS	**15 days**	**Rp119,979,508**
Steel Works BJTS-420	5 days	Rp71,600,708
Column Formworks H800	5 days	Rp32,827,990
Concrete Works Fc=30 Mpa	5 days	Rp15,550,810
BEAM WORKS	**18 days**	**Rp787,525,745**
Steel Works BJTS-420	14 days	Rp351,336,935
Beam Formworks H800	14 days	Rp312,331,860
Concrete Works Fc=30 Mpa	14 days	Rp123,856,950
SLAB WORKS	**18 days**	**Rp793,951,262**
Steel Works BJTS-420	14 days	Rp321,251,107
Slab Formworks H800	14 days	Rp345,415,375
Concrete Works Fc=30 Mpa	14 days	Rp127,284,780
4TH FLOOR	**14 days**	**Rp748,695,533**
COLUMN WORKS	**14 days**	**Rp460,650,454**
Steel Works BJTS-420	12 days	Rp263,748,168
Column Formworks H800	12 days	Rp133,656,886
Concrete Works Fc=30 Mpa	12 days	Rp63,245,400
BEAM WORKS	**7 days**	**Rp158,515,100**
Steel Works BJTS-420	2 days	Rp68,994,390
Beam Formworks H800	3 days	Rp63,786,400
Concrete Works Fc=30 Mpa	2 days	Rp25,734,310
SLAB WORKS	**7 days**	**Rp129,529,979**
Steel Works BJTS-420	2 days	Rp49,846,351
Slab Formworks H800	3 days	Rp60,643,718
Concrete Works Fc=30 Mpa	2 days	Rp19,039,910
5TH FLOOR	**14 days**	**Rp1,601,992,639**
COLUMN WORKS	**9 days**	**Rp517,608,464**
Steel Works BJTS-420	7 days	Rp332,506,704
Column Formworks H800	7 days	Rp127,071,540
Concrete Works Fc=30 Mpa	8 days	Rp58,030,220
BEAM WORKS	**7 days**	**Rp652,975,229**
Steel Works BJTS-420	7 days	Rp301,577,860
Beam Formworks H800	7 days	Rp243,211,444
Concrete Works Fc=30 Mpa	7 days	Rp108,185,924
SLAB WORKS	**7 days**	**Rp431,408,946**
Steel Works BJTS-420	7 days	Rp140,864,004
Slab Formworks H800	7 days	Rp220,505,292
Concrete Works Fc=30 Mpa	7 days	Rp70,039,650

6TH FLOOR	14 days	Rp1,601,812,822
COLUMN WORKS	**7 days**	**Rp515,649,601**
Steel Works BJTS-420	7 days	Rp332,506,704
Column Formworks H800	7 days	Rp125,971,517
Concrete Works Fc=30 Mpa	7 days	Rp57,171,380
BEAM WORKS	**8 days**	**Rp654,754,274**
Steel Works BJTS-420	7 days	Rp291,370,169
Beam Formworks H800	7 days	Rp254,906,701
Concrete Works Fc=30 Mpa	7 days	Rp108,477,404
SLAB WORKS	**8 days**	**Rp431,408,946**
Steel Works BJTS-420	7 days	Rp140,864,004
Slab Formworks H800	7 days	Rp220,505,292
Concrete Works Fc=30 Mpa	7 days	Rp70,039,650
7TH FLOOR	14 days	Rp1,472,729,648
COLUMN WORKS	**11 days**	**Rp382,294,648**
Steel Works BJTS-420	7 days	Rp199,151,751
Column Formworks H800	7 days	Rp125,971,517
Concrete Works Fc=30 Mpa	7 days	Rp57,171,380
BEAM WORKS	**8 days**	**Rp671,319,535**
Steel Works BJTS-420	7 days	Rp311,049,831
Beam Formworks H800	7 days	Rp252,511,022
Concrete Works Fc=30 Mpa	7 days	Rp107,758,682
SLAB WORKS	**8 days**	**Rp419,115,465**
Steel Works BJTS-420	7 days	Rp131,545,204
Slab Formworks H800	7 days	Rp210,279,499
Concrete Works Fc=30 Mpa	7 days	Rp77,290,762
8TH FLOOR	14 days	Rp1,582,323,948
COLUMN WORKS	**9 days**	**Rp237,747,926**
Steel Works BJTS-420	6 days	Rp134,448,492
Column Formworks H800	6 days	Rp71,193,194
Concrete Works Fc=30 Mpa	6 days	Rp32,106,240
BEAM WORKS	**12 days**	**Rp853,854,152**
Steel Works BJTS-420	7 days	Rp412,602,364
Beam Formworks H800	7 days	Rp306,594,838
Concrete Works Fc=30 Mpa	8 days	Rp134,656,950
SLAB WORKS	**12 days**	**Rp490,721,870**
Steel Works BJTS-420	7 days	Rp167,383,720
Slab Formworks H800	7 days	Rp247,028,130
Concrete Works Fc=30 Mpa	8 days	Rp76,310,020
ROOF	14 days	Rp1,109,660,645
BEAM WORKS	**14 days**	**Rp690,138,002**
Steel Works BJTS-420	8 days	Rp326,211,444
Beam Formworks H800	8 days	Rp235,452,838
Concrete Works Fc=30 Mpa	8 days	Rp128,473,720
SLAB WORKS	**14 days**	**Rp419,522,643**
Steel Works BJTS-420	8 days	Rp214,635,633
Slab Formworks H800	8 days	Rp104,865,044
Concrete Works Fc=30 Mpa	8 days	Rp54,593,230
COLUMN WORKS	**6 days**	**Rp45,428,736**
Steel Works BJTS-420	6 days	Rp28,310,786
Column Formworks H800	6 days	Rp13,749,901
Concrete Works Fc=30 Mpa	2 days	Rp3,368,050
LMR	7 days	Rp37,436,655
BEAM WORKS	**5 days**	**Rp23,425,502**
Steel Works BJTS-420	2 days	Rp7,831,271
Beam Formworks H800	2 days	Rp10,948,571
Concrete Works Fc=30 Mpa	1 day	Rp4,645,660
SLAB WORKS	**5 days**	**Rp14,011,153**
Steel Works BJTS-420	2 days	Rp4,928,995
Slab Formworks H800	2 days	Rp6,870,219
Concrete Works Fc=30 Mpa	1 day	Rp2,211,940
STAIRS	28 days	Rp702,785,753
COLUMN WORKS	**28 days**	**Rp66,887,322**
Steel Works BJTS-420	28 days	Rp29,185,076
Column Formworks H800	28 days	Rp33,984,076
Concrete Works Fc=30 Mpa	9 days	Rp3,718,170
BEAM WORKS	**28 days**	**Rp72,157,707**
Steel Works BJTS-420	28 days	Rp27,906,187
Beam Formworks H800	28 days	Rp38,116,650
Concrete Works Fc=30 Mpa	28 days	Rp6,134,870
SLAB WORKS	**28 days**	**Rp563,740,724**
Steel Works BJTS-420	28 days	Rp291,575,910
Slab Formworks H800	28 days	Rp185,475,414
Concrete Works Fc=30 Mpa	28 days	Rp86,689,400

Based on the rescheduling results, the total duration of the work is 49 days, and the full value of the work is Rp.11,017,969,680-, (Eleven billion seventeen million nine hundred sixty-nine six hundred and eighty rupiahs).

The next step is to simulate the results of the rescheduling according to the daily reports provided by the contractor. Simulations are carried out every week from the first to the last week to determine the increase in the duration of time and costs. The following are the results of the tracking simulation.

Table 3. Tracking Simulation Results

Task Name	Plan Duration	Tracking Duration	Plan Costs	Tracking Costs	Cost Difference
WEST JAVA GOVERNMENT OFFICE BUILDING PROJECT	**49 days**	**88 days**	**Rp11,017,969,680**	**Rp11,368,005,964**	**Rp350,036,284**
STRUCTURAL WORK	**49 days**	**88 days**	**Rp11,017,969,680**	**Rp11,368,005,964**	**Rp350,036,284**
1ST FLOOR	**7 days**	**7 days**	**Rp58,671,917**	**Rp58,671,917**	**Rp0**
COLUMN WORKS	**7 days**	**7 days**	**Rp58,671,917**	**Rp58,671,917**	**Rp0**
Steel Works BJTS-420	6 days	6 days	Rp27,195,516	Rp27,195,516	Rp0
Column Formworks H800	6 days	6 days	Rp21,722,301	Rp21,722,301	Rp0
Concrete Works Fc=30 Mpa	2 days	2 days	Rp9,754,100	Rp9,754,100	Rp0
2ND FLOOR	**14 days**	**14 days**	**Rp400,403,606**	**Rp400,403,606**	**Rp0**
BEAM WORKS	**7 days**	**9 days**	**Rp109,133,323**	**Rp109,133,323**	**Rp0**
Steel Works BJTS-420	5 days	5 days	Rp45,752,333	Rp45,752,333	Rp0
Beam Formworks H800	5 days	5 days	Rp44,848,910	Rp44,848,910	Rp0
Concrete Works Fc=30 Mpa	5 days	5 days	Rp18,532,080	Rp18,532,080	Rp0
SLAB WORKS	**9 days**	**9 days**	**Rp103,296,197**	**Rp103,296,197**	**Rp0**
Steel Works BJTS-420	5 days	5 days	Rp29,584,505	Rp29,584,505	Rp0
Slab Formworks H800	5 days	5 days	Rp55,730,872	Rp55,730,872	Rp0
Concrete Works Fc=30 Mpa	5 days	5 days	Rp17,980,820	Rp17,980,820	Rp0
COLUMN WORKS	**9 days**	**6 days**	**Rp187,974,085**	**Rp187,974,085**	**Rp0**
Steel Works BJTS-420	6 days	6 days	Rp67,397,299	Rp67,397,299	Rp0
Column Formworks H800	6 days	6 days	Rp94,133,857	Rp94,133,857	Rp0
Concrete Works Fc=30 Mpa	3 days	3 days	Rp26,442,930	Rp26,442,930	Rp0
3RD FLOOR	**28 days**	**16 days**	**Rp1,701,456,515**	**Rp1,701,586,635**	**Rp555,320**
BEAM WORKS	**18 days**	**16 days**	**Rp787,525,745**	**Rp787,525,745**	**Rp0**
Steel Works BJTS-420	14 days	14 days	Rp312,331,860	Rp312,331,860	Rp0
Beam Formworks H800	14 days	14 days	Rp351,336,935	Rp351,336,935	Rp0
Concrete Works Fc=30 Mpa	14 days	14 days	Rp123,856,950	Rp123,856,950	Rp0
SLAB WORKS	**18 days**	**16 days**	**Rp793,951,262**	**Rp793,951,262**	**Rp0**
Steel Works BJTS-420	14 days	14 days	Rp345,415,375	Rp345,415,375	Rp0
Slab Formworks H800	14 days	14 days	Rp321,251,107	Rp321,251,107	Rp0
Concrete Works Fc=30 Mpa	14 days	14 days	Rp127,284,780	Rp127,284,780	Rp0
COLUMN WORKS	**15 days**	**11 days**	**Rp119,979,508**	**Rp120,109,628**	**Rp555,320**
Steel Works BJTS-420	5 days	5 days	Rp71,600,708	Rp71,600,708	Rp0
Column Formworks H800	5 days	9 days	Rp32,827,990	Rp32,827,990	Rp0
Concrete Works Fc=30 Mpa	5 days	9 days	Rp15,550,810	Rp16,106,130	Rp555,320
4TH FLOOR	**14 days**	**17 days**	**Rp748,695,533**	**Rp766,320,663**	**Rp17,625,130**
COLUMN WORKS	**14 days**	**17 days**	**Rp460,650,454**	**Rp464,819,914**	**Rp4,169,460**
Steel Works BJTS-420	12 days	12 days	Rp133,656,886	Rp133,656,886	Rp0
Column Formworks H800	12 days	13 days	Rp263,748,168	Rp267,208,638	Rp3,460,470
Concrete Works Fc=30 Mpa	12 days	15 days	Rp63,245,400	Rp63,954,390	Rp708,990
BEAM WORKS	**7 days**	**7 days**	**Rp158,515,100**	**Rp166,301,760**	**Rp7,786,660**
Steel Works BJTS-420	3 days	3 days	Rp63,786,400	Rp63,786,400	Rp0
Beam Formworks H800	2 days	3 days	Rp68,994,390	Rp74,426,330	Rp5,431,940
Concrete Works Fc=30 Mpa	2 days	6 days	Rp25,734,310	Rp28,089,030	Rp2,354,720
SLAB WORKS	**7 days**	**7 days**	**Rp129,529,979**	**Rp135,198,989**	**Rp5,669,010**
Steel Works BJTS-420	3 days	3 days	Rp60,643,718	Rp60,643,718	Rp0
Slab Formworks H800	2 days	3 days	Rp49,846,351	Rp53,771,841	Rp3,925,490
Concrete Works Fc=30 Mpa	2 days	6 days	Rp19,039,910	Rp20,783,430	Rp1,743,520
STAIRS	**28 days**	**71 days**	**Rp702,785,753**	**Rp849,563,124**	**Rp146,777,371**
COLUMN WORKS	**28 days**	**71 days**	**Rp66,887,322**	**Rp103,218,522**	**Rp36,331,200**
Steel Works BJTS-420	28 days	62 days	Rp29,185,076	Rp34,711,096	Rp5,526,020
Column Formworks H800	28 days	71 days	Rp33,984,076	Rp63,605,056	Rp29,620,980
Concrete Works Fc=30 Mpa	9 days	71 days	Rp3,718,170	Rp4,902,370	Rp1,184,200
BEAM WORKS	**28 days**	**71 days**	**Rp72,157,707**	**Rp112,102,987**	**Rp39,945,280**
Steel Works BJTS-420	28 days	71 days	Rp27,906,187	Rp34,747,917	Rp6,841,730
Beam Formworks H800	28 days	71 days	Rp38,116,650	Rp70,766,550	Rp32,649,900
Concrete Works Fc=30 Mpa	28 days	71 days	Rp6,134,870	Rp6,588,520	Rp453,650
SLAB WORKS	**28 days**	**41 days**	**Rp563,740,724**	**Rp634,241,614**	**Rp70,500,891**
Steel Works BJTS-420	28 days	41 days	Rp291,575,910	Rp310,452,631	Rp18,876,721
Slab Formworks H800	28 days	41 days	Rp185,475,414	Rp235,317,024	Rp49,841,610
Concrete Works Fc=30 Mpa	28 days	41 days	Rp86,689,400	Rp88,471,960	Rp1,782,560
5TH FLOOR	**14 days**	**14 days**	**Rp1,601,992,639**	**Rp1,697,705,069**	**Rp95,712,430**
COLUMN WORKS	**9 days**	**14 days**	**Rp517,608,464**	**Rp560,986,884**	**Rp43,378,420**
Steel Works BJTS-420	7 days	10 days	Rp332,506,704	Rp354,945,234	Rp22,438,530
Column Formworks H800	7 days	9 days	Rp127,071,540	Rp147,688,440	Rp20,616,900
Concrete Works Fc=30 Mpa	8 days	9 days	Rp58,030,220	Rp58,353,210	Rp322,990
BEAM WORKS	**7 days**	**11 days**	**Rp652,975,229**	**Rp679,824,629**	**Rp26,849,400**
Steel Works BJTS-420	7 days	8 days	Rp243,211,444	Rp262,572,874	Rp19,361,430
Beam Formworks H800	7 days	8 days	Rp301,577,860	Rp308,360,840	Rp6,782,980
Concrete Works Fc=30 Mpa	7 days	8 days	Rp108,185,924	Rp108,890,914	Rp704,990
SLAB WORKS	**7 days**	**10 days**	**Rp431,408,946**	**Rp456,893,556**	**Rp25,484,610**
Steel Works BJTS-420	7 days	8 days	Rp220,505,292	Rp238,739,502	Rp18,234,210
Slab Formworks H800	7 days	9 days	Rp140,864,004	Rp147,201,024	Rp6,337,020
Concrete Works Fc=30 Mpa	7 days	9 days	Rp70,039,650	Rp70,953,030	Rp913,380

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6TH FLOOR	**14 days**	**11 days**	**Rp1,601,812,822**	**Rp1,645,191,362**	**Rp43,378,540**
COLUMN WORKS	**7 days**	**11 days**	**Rp515,649,601**	**Rp548,143,261**	**Rp32,493,660**
Steel Works BJTS-420	7 days	8 days	Rp332,506,704	Rp363,906,534	Rp31,399,830
Column Formworks H800	7 days	7 days	Rp125,971,517	Rp125,971,517	Rp0
Concrete Works Fc=30 Mpa	7 days	10 days	Rp57,171,380	Rp58,265,210	Rp1,093,830
BEAM WORKS	**8 days**	**9 days**	**Rp654,754,274**	**Rp662,013,954**	**Rp7,259,680**
Steel Works BJTS-420	7 days	8 days	Rp291,370,169	Rp297,923,149	Rp6,552,980
Beam Formworks H800	7 days	7 days	Rp254,906,701	Rp254,906,701	Rp0
Concrete Works Fc=30 Mpa	7 days	8 days	Rp108,477,404	Rp109,184,104	Rp706,700
SLAB WORKS	**8 days**	**9 days**	**Rp431,408,946**	**Rp435,034,146**	**Rp3,625,200**
Steel Works BJTS-420	7 days	8 days	Rp140,864,004	Rp144,032,514	Rp3,168,510
Slab Formworks H800	7 days	7 days	Rp220,505,292	Rp220,505,292	Rp0
Concrete Works Fc=30 Mpa	7 days	8 days	Rp70,039,650	Rp70,496,340	Rp456,690
7TH FLOOR	**14 days**	**16 days**	**Rp1,472,729,648**	**Rp1,491,382,191**	**Rp18,652,543**
COLUMN WORKS	**11 days**	**16 days**	**Rp382,294,648**	**Rp389,785,471**	**Rp7,490,823**
Steel Works BJTS-420	5 days	6 days	Rp199,151,751	Rp205,420,111	Rp6,268,360
Column Formworks H800	5 days	9 days	Rp125,971,517	Rp127,193,400	Rp1,221,883
Concrete Works Fc=30 Mpa	5 days	5 days	Rp57,171,380	Rp57,171,960	Rp580
BEAM WORKS	**8 days**	**8 days**	**Rp671,319,535**	**Rp679,017,855**	**Rp7,698,320**
Steel Works BJTS-420	7 days	8 days	Rp311,049,831	Rp318,044,871	Rp6,995,040
Beam Formworks H800	7 days	7 days	Rp252,511,022	Rp252,511,022	Rp0
Concrete Works Fc=30 Mpa	7 days	8 days	Rp107,758,682	Rp108,461,962	Rp703,280
SLAB WORKS	**8 days**	**8 days**	**Rp419,115,465**	**Rp422,578,865**	**Rp3,463,400**
Steel Works BJTS-420	7 days	8 days	Rp131,545,204	Rp134,505,164	Rp2,959,960
Slab Formworks H800	7 days	7 days	Rp210,279,499	Rp210,279,499	Rp0
Concrete Works Fc=30 Mpa	7 days	8 days	Rp77,290,762	Rp77,794,202	Rp503,440
8TH FLOOR	**14 days**	**10 days**	**Rp1,582,323,948**	**Rp1,598,241,798**	**Rp15,917,850**
BEAM WORKS	**12 days**	**9 days**	**Rp853,854,152**	**Rp854,604,182**	**Rp750,030**
Steel Works BJTS-420	7 days	7 days	Rp412,602,364	Rp412,602,364	Rp0
Beam Formworks H800	7 days	7 days	Rp306,594,838	Rp306,594,838	Rp0
Concrete Works Fc=30 Mpa	8 days	9 days	Rp134,656,950	Rp135,406,980	Rp750,030
SLAB WORKS	**12 days**	**9 days**	**Rp490,721,870**	**Rp494,911,670**	**Rp4,189,800**
Steel Works BJTS-420	7 days	8 days	Rp167,383,720	Rp171,148,190	Rp3,764,470
Slab Formworks H800	7 days	7 days	Rp247,028,130	Rp247,028,130	Rp0
Concrete Works Fc=30 Mpa	8 days	9 days	Rp76,310,020	Rp76,735,350	Rp425,330
COLUMN WORKS	**9 days**	**9 days**	**Rp237,747,926**	**Rp248,725,946**	**Rp10,978,020**
Steel Works BJTS-420	6 days	7 days	Rp134,448,492	Rp137,976,042	Rp3,527,550
Column Formworks H800	6 days	9 days	Rp32,106,240	Rp32,819,490	Rp713,250
Concrete Works Fc=30 Mpa	6 days	7 days	Rp71,193,194	Rp77,930,414	Rp6,737,220
ROOF	**14 days**	**11 days**	**Rp1,109,660,645**	**Rp1,121,502,945**	**Rp11,842,300**
BEAM WORKS	**14 days**	**10 days**	**Rp690,138,002**	**Rp697,987,032**	**Rp7,849,030**
Steel Works BJTS-420	8 days	9 days	Rp326,211,444	Rp332,629,974	Rp6,418,530
Beam Formworks H800	8 days	8 days	Rp235,452,838	Rp235,452,838	Rp0
Concrete Works Fc=30 Mpa	8 days	10 days	Rp128,473,720	Rp129,904,220	Rp1,430,500
SLAB WORKS	**14 days**	**11 days**	**Rp419,522,643**	**Rp423,515,913**	**Rp3,993,270**
Steel Works BJTS-420	8 days	9 days	Rp214,635,633	Rp218,858,103	Rp4,222,470
Slab Formworks H800	8 days	8 days	Rp104,865,044	Rp104,865,044	Rp0
Concrete Works Fc=30 Mpa	8 days	7 days	Rp54,593,230	Rp54,593,230	Rp0
COLUMN WORKS	**6 days**	**11 days**	**Rp45,428,736**	**Rp45,503,426**	**Rp74,690**
Steel Works BJTS-420	6 days	6 days	Rp28,310,786	Rp28,310,786	Rp0
Column Formworks H800	6 days	6 days	Rp13,749,901	Rp13,749,901	Rp0
Concrete Works Fc=30 Mpa	2 days	3 days	Rp3,368,050	Rp3,442,740	Rp74,690
LMR	**7 days**	**2 days**	**Rp37,436,655**	**Rp37,436,655**	**Rp0**
BEAM WORKS	**5 days**	**2 days**	**Rp23,425,502**	**Rp23,425,502**	**Rp0**
Steel Works BJTS-420	2 days	2 days	Rp7,831,271	Rp7,831,271	Rp0
Beam Formworks H800	2 days	2 days	Rp10,948,571	Rp10,948,571	Rp0
Concrete Works Fc=30 Mpa	1 day	1 day	Rp4,645,660	Rp4,645,660	Rp0
SLAB WORKS	**5 days**	**2 days**	**Rp14,011,153**	**Rp14,011,153**	**Rp0**
Steel Works BJTS-420	2 days	2 days	Rp4,928,995	Rp4,928,995	Rp0
Slab Formworks H800	2 days	2 days	Rp6,870,219	Rp6,870,219	Rp0
Concrete Works Fc=30 Mpa	1 day	1 day	Rp2,211,940	Rp2,211,940	Rp0

The table shows a difference between the planned schedule and the tracking simulation results. The total duration of construction of the West Java Government Office Building is planned from 49 days to 88 days, meaning that the project has been delayed by 39 days. The planned cost for constructing the West Java Government Office Building project is Rp.11,017,969,680-, and it becomes Rp.11,368,005,964-, meaning that the project experienced a cost overrun of Rp.350,036,284-.

CONCLUSION AND SUGGESTION

Conclusion

From the results of the analysis, conclusions can be drawn for the formulation of the existing problems, namely as follows:

1) Based on the s curve plan monitoring data and the results of the tracking carried out every week on the construction project of the West Java Government Office Building, it can be seen that the project began to experience delays in the work on the 4th floor and stairs.

2) From the simulation results of the West Java Government Office building project simulation, it is not in accordance with the planned schedule that the project is experiencing delays, and the costs for working on the project are getting bigger.

3) The project experienced a delay of 80% from the initial plan, which increased costs from the planned Rp. 11,017,969,680- it becomes Rp. 11,368,005,964-, and the difference between the plan cost and the cost obtained from the tracking results is Rp. 350,036,284-,.

Suggestion

Based on the results of the discussion and evaluation described in the previous chapter, several recommendations were obtained as follows:

1) In scheduling a project, the scheduler should consider an efficient schedule and minimize possible risks in carrying out the work.

2) The project scheduler should consider several possible variables, such as the availability of materials and weather, that can interfere with project implementation, so there are no additional costs.

3) Progress tracking method using Microsoft Project should be applied to every project development because it can estimate the increase in time duration and the rise in costs.

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