# ANALYSIS OF TIME AND COST PERFORMANCE IN THE COMPLETING OF THE CONSTRUCTION PROJECT FOR THE REGIONAL DISASTER MANAGEMENT AGENCY (BPBD) BUILDING COMPLEX IN PASURUAN REGENCY, BUDGET YEAR 2023

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### Abstract

*In the construction project of the Pasuruan Regency BPBD building complex, which is currently still ongoing, has experienced problems related to the schedule for the implementation of its activities. The problem in question is the delay in the schedule for the implementation of its activities, where the results of the progress realization are not in accordance with the schedule plan, through this writing an evaluation is carried out related to performance in the field through an approach using. The data analysis process is carried out by calculating analysis indicators including BCWS, BCWP and ACWP, the calculation of cost indicators consists of calculating the CV value, Cost Performance Index (CPI), ETC and EAC, and also calculating related to time indicators including calculating the SV value, Time Performance Index (SPI) and also calculating the time requirements / Estimated time (TE) in project completion. Based the results of calculation / data analysis that has been carried out, the Cost Performance Index value CPI> 1 is obtained, and the SPI Time Performance Index value < 1, indicating that the realization cost is still below the plan cost with the achievement of progress realization which is also still below the plan schedule. while for the ETC value of project completion of Rp.2,148,176,877,000..148,176,877.17 with an EAC value of Rp.16,624,276,448.77 from the total contract value of Rp. 18,898,770,576.77. and related to the estimated time requirement for project completion (TE) obtained a time of 220.75 ~ 221 days, 11 days later than the time provided 210 days.*

**Keywords:** *Performance, Project Time, Project Cost*

## 1. INTRODUCTION

Pasuruan district government relocated BPBD offices and workshops from the office complex Dinas-Raci, Pasuruan Regency to Kraton District in addition to considering the condition of the office complex Dinas-Raci which is now quite crowded also with the hope that the mobilization of emergency equipment from the public kitchen, Damkar, boats from BPBD and Tagana and others can be faster to the disaster site, especially to the eastern part of Pasuruan district where the location of the new BPBD building is on the edge of the highway which is the access / main road from the eastern region to the western region of Pasuruan district and vice versa, so that in the end the implementation of BPBD building construction activities was carried out.

Construction project management has a scope of stages starting from planning activities, followed by implementation activities, and project control acivities. at the time

of the project control stage, the steps of the activities to be carried out are reviewed in advance so that what is targeted in the implementation of project activities is expected to be completed both in terms of the time used, the costs incurred, and the quality of the work carried out.The implementation of project evaluation / monitoring is one of the project control efforts intended so that the project can be carried out in accordance with the target, namely the right quality, time, and cost, can be carried out effectively and efficiently. where the implementation of effective and efficient project activities is expected to provide benefits / benefits and not reduce the quality side of the work itself. As previously required in relation to good project performance is the suitability of the products produced with the plan, the realization of the time used and the costs incurred are expected to be lower than the previously arranged plan.

Based on the results of previous research from a journal written by Zakariyya et al., (2020) with the title Cost Analysis and Schedule of the Trenggalek Regency Health Office Building Construction Project with the Earned Value Method, where the Trenggalek Regency Health Office Building Construction is a construction project that includes a large scale, and as in general in the implementation of large-scale project activities problems often arise related to project performance(Nurtsani et al., 2017). From this, of course, there is a need for control efforts related to the costs incurred and also the time to be used so that it is hoped that the project can run according to the plan that has been compiled (Nugroho et al., 2019). In this study, the Earned Value Method is used with the intention of being able to determine the performance index , so that in the end it can be estimated the cost requirements and time requirements used for the completion of the project activities, which in turn can immediately obtain the corrective steps that must be taken for the progress of the ongoing project (Kartikasari & Inayaturrochmah, 2018). Based on existing data, the results of the study in week 12 are as follows: Budgeted Cost of Work Schedule (BCWS) of Rp1,946,626,471.64, Budgeted Cost of Work Performed (BCWP) of Rp1,319,204,394.05, Actual Cost of Work Performed (ACWP) of Rp1,181,554,085.52. Cost performance has an advantage, Cost Variant (CV) of IDR137,660,308.53 or Cost Performance Index (CPI) of 1.117>1. Schedule performance is delayed, Schedule Variant (SV) is - Rp627,422,077.59 or Schedule Performance Index (SPI) is 0.678 < 1. Estimate at Completion (EAC) is Rp3,483,730,479.63 with a profit of Rp405,885,332.51. Estimate All Schedule (EAS) for 29.707 weeks, slow 5.707 weeks (Zakariyya et al., 2020). In the construction project of the BPBD building complex of Pasuruan Regency, which was used as a study material in the preparation of this thesis, an approach was taken related to the performance evaluation of the implementation of project activities with the intention of obtaining information on problems arising in the implementation of project activities. as with what has been said at the beginning, that the implementation of the construction / procurement activities of the new BPBD project aims to be able to provide maximum service to the community, with the location of the new building which has close access from the main road in the Pasuruan Regency area. With the support of equipment readiness and mobilization that can more quickly reach all areas of Pasuruan district, in addition it is also due to the limited area of the old BPBD office which adjoins office buildings and other official facilities.

In the implementation of its activities, the BPBD building construction project is currently experiencing a negative deviation, which means experiencing delays from the

planned schedule. The negative deviation rate from the existing weekly progress data is indicated starting from the beginning of the week, namely in weeks 1, 2 and 3, and again experiencing negative deviations in weeks 16, 17, 18 and 19 / currently. The problem of this delay is in line with the performance of the project in the early stages of implementation, where in the early stages of implementation the contractor must carry out preparatory work and structuring the project area first. starting from the procurement / making of accesses into the project area, compaction of land, making fences around the project area, directors' quarters and making workers' barracks along with supporting facilities / facilities, procurement of electricity resources and also working water by making boreholes which certainly cannot immediately run optimally. seeing this in the implementation of its activities, an effort is needed which is called project control.

The level of achievement in an implementation of project activities or what is commonly referred to as project performance can be seen from the results of the implementation of the project activities themselves, project performance is said to be lacking, of course there are delays and will ultimately lead to additional operational costs of implementation. This is also the case with what is currently taking place in the Pasuruan Regency BPBD building construction project, which is experiencing delays in the middle of the previously planned implementation schedule and is worried that it will continue until the end of the implementation time.

The difference / discrepancy between the costs that have been incurred and the realization of the results of work in the field from what has been planned is certainly a problem if the results achieved are far below what was planned from the start. Likewise, related to the length of completion time that is longer than the planned project completion time, this is certainly also a problem that must be addressed immediately. Therefore, in the implementation of its activities in the construction project of the BPBD building complex of Pasuruan Regency, it is necessary to conduct periodic evaluations as an anticipatory step to prevent unwanted problems from arising together.

## 2. METHOD RESEARCH

In this study took the object of research on the Pasuruan Regency BPBD Building Complex Development Project, based on existing project contract data the project was carried out with a budget value of Rp. 18,898,770,576.77 (Eighteen Billion Eight Hundred Ninety Eight Million Seven Hundred Seventy Thousand Rupiah) managed by the Water Resources, Cipta Karya and Spatial Planning Office of Pasuruan Regency. The executing contractor on this project is PT. Konstruksi Bangun Persada with supervisory consultant PT. Pilar Empat with an implementation time of 210 calendar days.

Data collection process To measure and analyze project performance, data is first collected for each of the project's key performance dimensions: scope, schedule, and cost. Cost management plan, schedule management plan, scope management plan. The data used are primary data and secondary data. Primary data consisted of site surveys and interviews with contractors. While secondary data consists of time schedule, weekly and monthly reports, RAB.

## 3. DATA ANALYSIS AND DISCUSSION
### 3.1. Analysis of Time and Cost Performance of Project Completion

During the implementation of project activities, it is very necessary to have an evaluation in a certain time interval so that the implementation of the project can be coordinated, monitored and controlled, which of course is expected if there are problems or deviations in the implementation of project activities can be resolved or overcome immediately. The following will convey the calculation steps of the time and cost performance analysis with its indicators in the analysis of project completion. so that in the end it can be known how long it is related to the time needed and the costs that must be incurred by the implementing contractor to complete the project in question. As previously stated, related to the calculation of performance analysis carried out until the review at the end of week 25, the calculations are as follows:

### 1) Cost Variant (CV) Calculation

Cost variance (CV) is used to find out the difference between the planned cost and the actual cost of the work that is / has been running. CV can determine that the ongoing project is still within the budget limit of the plan or not. CV value is obtained from the difference between the Cumulative BCWP value and the Cumulative ACWP value, for example, the CV calculation in week 25 is conveyed as follows:

$$CV = BCWP - ACWP$$
$$= Rp. 16,456,293,467.43 - Rp.14,476,099,571.60$$
$$= Rp. 1,980,193,895.83$$

From the results of the above calculations, a positive CV value is obtained, this means that the costs incurred in the implementation of the project (ACWP) are lower than the planned costs (BCWP). So that it experiences what is called Cost Underrun, the following are the results of the recapitulation of the calculation of the complete CV value in table 1.

**Table 1. Calculation of CV Value Up to Week 25**

| No | BCWP | ACWP | CV |
|---|---|---|---|
| 1 | 0,00 | 0,00 | 0,00 |
| 2 | 0,00 | 7.093.288,79 | -7.093.288,79 |
| 3 | 188.987,71 | 31.992.180,05 | -31.803.192,34 |
| 4 | 1.099.908.447,57 | 579.912.548,84 | 519.995.898,73 |
| 5 | 1.936.557.021,00 | 1.103.223.548,35 | 833.333.472,65 |
| 6 | 2.317.745.223,54 | 1.559.944.489,84 | 757.800.733,70 |
| 7 | 2.520.151.056,41 | 1.989.016.081,14 | 531.134.975,27 |
| 8 | 2.680.223.643,20 | 2.321.532.088,30 | 358.691.554,90 |
| 9 | 3.330.908.314,16 | 2.838.907.886,99 | 492.000.427,17 |
| 10 | 4.044.336.903,43 | 3.426.058.485,61 | 618.278.417,82 |
| 11 | 5.861.831.669,80 | 4.423.896.029,08 | 1.437.935.640,72 |
| 12 | 6.247.555.577,27 | 5.029.576.035,16 | 1.217.979.542,11 |

| 13 | 7.104.236.847,51 | 5.893.075.374,60 | 1.211.161.472,91 |
|----|------------------|------------------|------------------|
| 14 | 7.748.873.911,89 | 6.628.026.949,85 | 1.120.846.962,04 |
| 15 | 9.496.821.202,53 | 7.675.372.753,86 | 1.821.448.448,67 |
| 16 | 9.606.245.084,17 | 8.123.987.079,58 | 1.482.258.004,59 |
| 17 | 10.280.553.218,35 | 8.616.463.987,01 | 1.664.089.231,34 |
| 18 | 11.325.088.268,13 | 9.570.149.426,78 | 1.754.938.841,35 |
| 19 | 11.944.023.004,52 | 10.365.755.859,24 | 1.578.267.145,28 |
| 20 | 13.431.167.261,20 | 11.284.698.660,04 | 2.146.468.601,16 |
| 21 | 14.053.125.800,89 | 11.973.181.955,67 | 2.079.943.845,22 |
| 22 | 14.612.907.385,37 | 12.538.907.926,93 | 2.073.999.458,44 |
| 23 | 15.362.432.626,44 | 13.247.223.478,96 | 2.115.209.147,48 |
| 24 | 16.081.341.859,19 | 13.928.323.963,81 | 2.153.017.895,38 |
| 25 | 16.456.293.467,43 | 14.476.099.571,60 | 1.980.193.895,83 |

Source: Processed Researcher Data, 2023

## 2) Schedule Variance (SV) Calculation

To find out the duration of the work time on an ongoing project in accordance with the schedule plan or not use the calculation of indicators called Schedule Variance (SV) / Schedule variance, to recapitulate the results of the calculation of Schedule Variance (SV). The following is an example of the calculation of Schedule Variant / Schedule Variant in week 25:

SV      = BCWP - BCWS
        = Rp.16,456,293,467.43 - Rp.17,336,755,690.65
        = - Rp.880,462,223.22

The results of the above calculations have a negative value / produce a negative deviation which has an indication that the work is delayed from the planned schedule, for a recapitulation of the results of the calculation of Schedule Variant (SV) further conveyed in table 2 below:

**Table 2. Calculation of SV Value Up to Week 25**

| No | BCWP | BCWS | SV |
|----|------|------|-----|
| 1 | 0,00 | 5.864.918,47 | -5.864.918,47 |
| 2 | 0,00 | 11.729.836,94 | -11.729.836,94 |
| 3 | 188.987,71 | 282.366.531,19 | -282.177.543,48 |
| 4 | 1.099.908.447,57 | 553.003.225,44 | 546.905.222,13 |
| 5 | 1.936.557.021,00 | 896.778.161,82 | 1.039.778.859,18 |
| 6 | 2.317.745.223,54 | 1.260.774.782,72 | 1.056.970.440,82 |
| 7 | 2.520.151.056,41 | 1.632.519.899,55 | 887.631.156,86 |
| 8 | 2.680.223.643,20 | 2.087.419.606,93 | 592.804.036,27 |
| 9 | 3.330.908.314,16 | 2.606.008.171,14 | 724.900.143,02 |
| 10 | 4.044.336.903,43 | 3.254.998.252,34 | 789.338.651,09 |
| 11 | 5.861.831.669,80 | 4.160.444.650,26 | 1.701.387.019,54 |

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| No | BCWP | BCWS | SV |
|----|------|------|-----|
| 12 | 6.247.555.577,27 | 5.045.669.363,67 | 1.201.886.213,60 |
| 13 | 7.104.236.847,51 | 6.076.603.598,22 | 1.027.633.249,29 |
| 14 | 7.748.873.911,89 | 7.181.243.038,02 | 567.630.873,87 |
| 15 | 9.496.821.202,53 | 8.522.684.073,15 | 974.137.129,38 |
| 16 | 9.606.245.084,17 | 9.846.549.251,65 | -240.304.167,48 |
| 17 | 10.280.553.218,35 | 11.295.713.279,06 | -1.015.160.060,71 |
| 18 | 11.325.088.268,13 | 12.530.943.223,55 | -1.205.854.955,42 |
| 19 | 11.944.023.004,52 | 13.510.094.826,72 | -1.566.071.822,20 |
| 20 | 13.431.167.261,20 | 14.226.364.531,17 | -795.197.269,97 |
| 21 | 14.053.125.800,89 | 14.932.239.911,81 | -879.114.110,92 |
| 22 | 14.612.907.385,37 | 15.496.185.525,41 | -883.278.140,04 |
| 23 | 15.362.432.626,44 | 16.100.196.532,63 | -737.763.906,19 |
| 24 | 16.081.341.859,19 | 16.724.051.248,96 | -642.709.389,77 |
| 25 | 16.456.293.467,43 | 17.336.755.690,65 | -880.462.223,22 |

Source: Processed Researcher Data, 2023

In table 2 above in the position starting from week 16, negative deviation results were obtained, this shows that the implementation in the field began to be delayed after the previous weeks experienced positive deviation / there was an acceleration of the planned progress. This negative deviation value lasts continuously until the 25th week, which means that there has been a delay from the planned progress until the 25th week, work that should have been completed but has not been done. for the zero deviation number indicates that the work that has been done is running according to plan.

### 3) Cost Performance Index (CPI)

The CPI value can be calculated by comparing the value of physically completed work (BCWP) with the actual costs incurred in the same period (ACWP). The following is an example of CPI calculation in week 25:

$$CPI = \frac{BCWP}{ACWP}$$
$$CPI = \frac{16.456.293.467,43}{14.476.099.571,60}$$
$$CPI = 1,137$$

The CPI number indicator is used to determine the extent of costs that have been incurred by the implementing contractor in the implementation of a project activity within a certain period. this can be known from the results of the calculation of the CPI number in a project activity itself. the CPI number> 1, it can be interpreted that the implementation costs that have been incurred by the implementing contractor are smaller than the planned costs in the same period. the results of the recap of the calculation of the CPI value from week 1 to week 25 are presented in table 3. below:

### Table 3. Calculation of CPI Value Up to Week 25

| No | BCWP | ACWP | CPI |
|----|------|------|-----|
| 1 | 0,00 | 0,00 | 0,000 |
| 2 | 0,00 | 7.093.288,79 | 0,000 |
| 3 | 188.987,71 | 31.992.180,05 | 0,006 |
| 4 | 1.099.908.447,57 | 579.912.548,84 | 1,897 |
| 5 | 1.936.557.021,00 | 1.103.223.548,35 | 1,755 |
| 6 | 2.317.745.223,54 | 1.559.944.489,84 | 1,486 |
| 7 | 2.520.151.056,41 | 1.989.016.081,14 | 1,267 |
| 8 | 2.680.223.643,20 | 2.321.532.088,30 | 1,155 |
| 9 | 3.330.908.314,16 | 2.838.907.886,99 | 1,173 |
| 10 | 4.044.336.903,43 | 3.426.058.485,61 | 1,180 |
| 11 | 5.861.831.669,80 | 4.423.896.029,08 | 1,325 |
| 12 | 6.247.555.577,27 | 5.029.576.035,16 | 1,242 |
| 13 | 7.104.236.847,51 | 5.893.075.374,60 | 1,206 |
| 14 | 7.748.873.911,89 | 6.628.026.949,85 | 1,169 |
| 15 | 9.496.821.202,53 | 7.675.372.753,86 | 1,237 |
| 16 | 9.606.245.084,17 | 8.123.987.079,58 | 1,182 |
| 17 | 10.280.553.218,35 | 8.616.463.987,01 | 1,193 |
| 18 | 11.325.088.268,13 | 9.570.149.426,78 | 1,183 |
| 19 | 11.944.023.004,52 | 10.365.755.859,24 | 1,152 |
| 20 | 13.431.167.261,20 | 11.284.698.660,04 | 1,190 |
| 21 | 14.053.125.800,89 | 11.973.181.955,67 | 1,174 |
| 22 | 14.612.907.385,37 | 12.538.907.926,93 | 1,165 |
| 23 | 15.362.432.626,44 | 13.247.223.478,96 | 1,160 |
| 24 | 16.081.341.859,19 | 13.928.323.963,81 | 1,155 |
| 25 | 16.456.293.467,43 | 14.476.099.571,60 | 1,137 |

Source: Processed Researcher Data, 2023

### 4) Schedule Performance Index (SPI)

The SPI value is obtained by comparing the realized cost of physically completed work (BCWP) with the cost expenditure plan (BCWS). The following is an example of calculating the SPI value up to week 25

$$\text{SPI} = \frac{BCWP}{BCWS}$$

$$\text{SPI} = \frac{16.456.293.467,43}{17.336.755.690,65}$$

$$\text{SPI} = 0,949$$

The result of the SPI calculation is 0.949 which means that there has been a delay in progress where the SPI value is < 1.00, if the SPI value> 1.00 means that the work has accelerated. The following is a recap of the SPI calculation from week 1 to week 25 in table 4.

**Table 4. Calculation of SPI Value Up to Week 25**

| No | BCWP | BCWS | SPI |
|---|---|---|---|
| 1 | 0,00 | 5.864.918,47 | 0,000 |
| 2 | 0,00 | 11.729.836,94 | 0,000 |
| 3 | 188.987,71 | 282.366.531,19 | 0,001 |
| 4 | 1.099.908.447,57 | 553.003.225,44 | 1,989 |
| 5 | 1.936.557.021,00 | 896.778.161,82 | 2,159 |
| 6 | 2.317.745.223,54 | 1.260.774.782,72 | 1,838 |
| 7 | 2.520.151.056,41 | 1.632.519.899,55 | 1,544 |
| 8 | 2.680.223.643,20 | 2.087.419.606,93 | 1,284 |
| 9 | 3.330.908.314,16 | 2.606.008.171,14 | 1,278 |
| 10 | 4.044.336.903,43 | 3.254.998.252,34 | 1,243 |
| 11 | 5.861.831.669,80 | 4.160.444.650,26 | 1,409 |
| 12 | 6.247.555.577,27 | 5.045.669.363,67 | 1,238 |
| 13 | 7.104.236.847,51 | 6.076.603.598,22 | 1,169 |
| 14 | 7.748.873.911,89 | 7.181.243.038,02 | 1,079 |
| 15 | 9.496.821.202,53 | 8.522.684.073,15 | 1,114 |
| 16 | 9.606.245.084,17 | 9.846.549.251,65 | 0,976 |
| 17 | 10.280.553.218,35 | 11.295.713.279,06 | 0,910 |
| 18 | 11.325.088.268,13 | 12.530.943.223,55 | 0,904 |
| 19 | 11.944.023.004,52 | 13.510.094.826,72 | 0,884 |
| 20 | 13.431.167.261,20 | 14.226.364.531,17 | 0,944 |
| 21 | 14.053.125.800,89 | 14.932.239.911,81 | 0,941 |
| 22 | 14.612.907.385,37 | 15.496.185.525,41 | 0,943 |
| 23 | 15.362.432.626,44 | 16.100.196.532,63 | 0,954 |
| 24 | 16.081.341.859,19 | 16.724.051.248,96 | 0,962 |
| 25 | 16.456.293.467,43 | 17.336.755.690,65 | 0,949 |

Source: Processed Researcher Data, 2023

### 3.2. Project Cost and Time Estimation

To find out the estimate of the cost and time required to complete a project activity implementation, 3 variables are required that must be taken into account and fulfilled, while the 3 variables referred to consist of ETC (Estimate To Complete), EAC (Estimate At Complete) and TE (Time Estimate). the following explanation is related to the variables referred to:

### 3.2.1. ETC (Estimate To Complete)

ETC is used to calculate the estimated cost required in completing a project activity, by calculating the difference in the total cost budget plan of a project / Budget at Completion (BAC) with the Cumulative BCWP divided by the CPI value in one period. in this case it is known that the planned cost requirement is Rp. 18,898,770,576.77, so that the ETC value in the 25th week position can be calculated as follows (**ETC calculation for progress> 50%**):

$$ETC = \frac{BAC - BCWP}{CPI}$$
$$ETC = \frac{18.898.770.576,77 - 16.456.293.467,43}{1,137}$$
$$ETC = 2.148.176.877,17$$

Based on the results of the calculation of the ETC value above, the ETC value is Rp.2,148,176,877.17, so that the estimated cost requirement or shortfall for project completion 8 from the 25th week period with the achievement of 87.076% progress weight is Rp.2,148,176,877.17.

### 3.2.2. EAC (Estimate AT Completion)

EAC is the estimated value of the total cost requirements until the end of the project / completion of a project. The calculation of the EAC value is obtained from the actual cost value (ACWP) added to the total cost shortfall for work completion (ETC) / the remaining budget for work that has not yet been done. then for positions up to week 25 can do the EAC calculation as follows:

$$EAC = ACWP + ETC$$
$$EAC = 14.476.099.571,60 + 2.148.176.877,17$$
$$EAC = 16.624.276.448,77$$

So from the calculation with a position in week 25 of the total contract time of 31 weeks, the EAC value is Rp.16,624,276,448.77.

### 3.2.3 TE (Time Estimate)

Time Estimate (TE) is an estimate of the time required for the completion of a project to completion on the basis of performance in the field. with the review period in week 25, the TE calculation analysis is carried out with the following formula:

$$TE = ATE + \frac{OD - (ATE \times SPI)}{SPI}$$
$$TE = 171 + \frac{210 - (171 \times 0,949)}{0,949}$$
$$TE = 171 + \frac{210 - (162,279)}{0,949}$$
$$TE = 171 + \frac{47,721}{0,949}$$
$$TE = 171 + 49,747$$
$$TE = 220,747 \sim 221 \text{ Days}$$

Based on the results of the TE calculation analysis above, the estimated project completion time is 221 days, the difference in completion time is 11 days later than the contract time of 210 days. The recap of the Time Estimate (TE) calculation is presented in table 5.

**Table 5. Calculation of TE Value (Days) Up to Week 25**

| No | OD (Days) | ATE (Days) | SPI | $\frac{OD - (ATE \times SPI)}{SPI}$ | TE (Days) | Difference (Days) | Description |
|---|---|---|---|---|---|---|---|
| 1 | 210 | 3 | 0,000 | 0,00 | 0 | 0 | No activities |
| 2 | 210 | 10 | 0,000 | 0,00 | 0 | 0 | No activities |
| 3 | 210 | 17 | 0,001 | 0,00 | 0 | 0 | No activities |
| 4 | 210 | 24 | 1,989 | 81,58 | 106 | -104 | There is acceleration |
| 5 | 210 | 31 | 2,160 | 66,24 | 97 | -113 | There is acceleration |
| 6 | 210 | 38 | 1,838 | 76,23 | 114 | -96 | There is acceleration |
| 7 | 210 | 45 | 1,544 | 91,03 | 136 | -74 | There is acceleration |
| 8 | 210 | 52 | 1,284 | 111,55 | 164 | -46 | There is acceleration |
| 9 | 210 | 59 | 1,278 | 105,29 | 164 | -46 | There is acceleration |
| 10 | 210 | 66 | 1,243 | 103,01 | 169 | -41 | There is acceleration |
| 11 | 210 | 73 | 1,409 | 76,05 | 149 | -61 | There is acceleration |
| 12 | 210 | 80 | 1,238 | 89,60 | 170 | -40 | There is acceleration |
| 13 | 210 | 87 | 1,169 | 92,62 | 180 | -30 | There is acceleration |
| 14 | 210 | 94 | 1,079 | 100,61 | 195 | -15 | There is acceleration |
| 15 | 210 | 101 | 1,114 | 87,46 | 188 | -22 | There is acceleration |
| 16 | 210 | 108 | 0,976 | 107,25 | 215 | 5 | There is a delay |
| 17 | 210 | 115 | 0,910 | 115,73 | 231 | 21 | There is a delay |
| 18 | 210 | 122 | 0,904 | 110,36 | 232 | 22 | There is a delay |
| 19 | 210 | 129 | 0,884 | 108,53 | 238 | 28 | There is a delay |
| 20 | 210 | 136 | 0,944 | 86,43 | 222 | 12 | There is a delay |
| 21 | 210 | 143 | 0,941 | 80,13 | 223 | 13 | There is a delay |
| 22 | 210 | 150 | 0,943 | 72,69 | 223 | 13 | There is a delay |
| 23 | 210 | 157 | 0,954 | 63,08 | 220 | 10 | There is a delay |
| 24 | 210 | 164 | 0,962 | 54,39 | 218 | 8 | There is a delay |
| 25 | 210 | 171 | 0,949 | 50,23 | 221 | 11 | There is a delay |

Source: Processed Researcher Data, 2023

## 4. CONCLUSIONS

From the results of the analysis calculations that have been carried out, the following conclusions are obtained:

1. The cost performance indicator on the BPBD building complex construction project in Pasuruan district obtained a Cost Performance Index (CPI) value of 1.137 / CPI value> 1, Schedule Performance Index (SPI) time performance indicator of 0.949 / SPI value < 1.

2. From the calculation / estimation of cost and time, an Estimate At Completion (EAC) value of Rp.16,624,276,448.77 was obtained for the completion of the project until the end of the contract from the total contract value of Rp. 18,898,770,576.77 and for the results of the Time Estimate (TE) calculation, the total project completion time requirement was 221 days from the total contract time provided for 210 days, so there was a delay of around 11 days.


## 5. ADVICE

1. The implementing contractor should pay more attention to project control efforts from the beginning of the implementation of project activities, among them by paying attention to the variance of performance indicators in the field as used in the Earned Value method (Romadhonnia et al., 2018).

2. All project organizers of the BPBD building complex should immediately take accelerated steps to catch up with delays and avoid potential delays in project completion time.


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