Analysis Factor of Delays Construction Building of Dinas Cipta Karya Tata Kota and Bina Marga in Samarinda

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RESEARCH ARTICLE OPEN ACCESS

Analysis Factor of Delays Construction Building of Dinas Cipta Karya Tata Kota and Bina Marga in Samarinda

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ABSTRACT
The construction project will achieve success if the parties were able complete the construction project accordance schedule, safety, cost and quality, heve been established. Many cases delays construction building in Samarinda city, making those a new problem that must be handled and may result in many programs dormant.
With thoso conditions, this research to identify and analyze the factors of delay construction building where these are the first step to success support of development projects. This research uses descriptive survey method. The purpose of this research, which describe a number of variables relating to the issue and studied the phenomenon. In this research the techniques to collect research data by questionnaire as an instrument to answer a set of questions or a written statement to the respondent. The goal this research is to obtain a complete description and depth. Case study data obtained from the primary data (questionnaire) and secondary data.
Based on the research results, obtained F count > F table, it means the material factors, labor, equipment, finance, environment, government policy changes, contracts, scheduling and control, with simultan and partially technic are positiv influenced and significan to delays in construction building Dinas Cipta Karya dan Tata Kota Bina Marga in Samarinda. Based on the results of multiple regression obtained standardized koefisien β the material factors is 0.456, its mean that factors influence dominan to delay building projects Dinas Cipta Karya Tata Kota and Bina Marga in Samarinda.
Keywords: Delay factors construction building

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I. INTRODUCTION

1.1 Background

To satisfy the various facilities required the construction of construction in Indonesia, undertaken development among others construction of various facilities, such as building government, building educational institutions, roads, bridges and hospitals. The development project will be successful if the relevant parties are able to complete the development project in accordance with the schedule, cost and quality and the safety of the workforce.

Many cases of delay in work of buildings project construction with grant APBD I and APBD II in the city of Samarinda experiencing delays in settlement, a new problem must be handled that can be delayed to abandoned programs. Factors suspected to affect delay of building projects in construction of Cipta Karya dan Tata Kota Bina Marga in Samarinda city are material, environment and labor.

Identifying delay factors for development projects is part of project control where the first step of the project journey to support success of the development project. Analysis of the delay factors of the development project will be able to facilitate control of process or activities of various development projects, including in sequence of activities. This identification can focus the work to be done more thoroughly or work that takes longer.

1.2 Problem of the Study

According to the background, it can be formulated as follow:

1. What are the factors that affect building project's delays in projects building Cipta Karya and Tata Kota Bina Marga in Samarinda?
2. What factors are most dominant influence of building project delay on Cipta Karya and Tata Kota Bina Marga in Samarinda?

1.3 Research Purpose

We can conclude the purpose of this research base on the problem above, it can be formulated as follow:

1. To analyze factors that affect building project's delays in projects building Cipta Karya Tata Kota and Bina Marga in Samarinda.
2. To analyze the most dominant influence of building project delay on Cipta Karya Tata Kota and Bina Marga in Samarinda..

II. REVIEW OF RELATED LITERARURE

2.1 Construction Project Management

Project management is the business or activity of planning, organizing, leading and controlling the company's resources to achieve predetermined short term goals as efficiently and effectively as possible (Kerzner, 2006).

Project management here is the activity of planning and organizing a project in which there is an organizational structure consisting of managers as project leaders who control resources and oversee the work and its members; and its members coordinate together, work hard together to achieve the desired goals, within the time set to work on the project.

2.2 Project Delay

According Levis and Atherley (1996), if a job has been targeted to be completed at the appointed time but for some reason can not be fulfilled it can be said that the work is delayed. This will have an impact on the original planning as well as on financial issues. The delay in a construction project will lengthen the project duration or increase the cost or both.

Delay is as time of execution that is not utilized in accordance with the activity plan one causing or more activities to follow to be delayed or not completed exactly as scheduled. (Ervianto, 2005).

According Callahan (1992), the occurrence of delay in implementation of a construction project may be caused by contractor or other factors affecting the project implementation. The delay may also caused by owner, planner, other parties or unexpected natural conditions. In many possible construction projects that may result in increased time from an activity or the timing completion of a project as a whole. Some of most common causes include: changes in field conditions, design changes or specifications, weather changes, unavailability of labor, materials, or equipment.

According Donal S Baffie (1990), although best procedures have been used, the problems will arise as well. Sometimes there is a changes in contractor's own plan that requires critical goods to be accelerated again from the date that has been approved. Other delays may arise from the supplier or contractor or on shipping process and the others.

III. RESEARCH METHODOLOGY

This research uses descriptive survey method. The purpose of this study, which describes a number of variables related to the problem and unit between phenomena tested at that time.

In this study the technique used to collect research data, namely by questionnaire as an instrument to answer a set of questions or written statement to respondent. The goal is to obtain a full and in depth description. The case study data were obtained from the primary data, data collected directly from source and recorded by researcher, by providing a list of questions and interviewing executor of the building project and the secondary data, those are obtained data from bibliography, research previous and magazine articles which related this research.

After data is collected, then processing analysis (editing and data conversion) so that data is widespread in the questionnaire items can be made more concise and simpler.

Factor analysis is used in this research to reduce and analyze affect the factors that become the description of building project delay.

Multiple Linear Regression Analysis is used to find most dominant influence of building project delay.

IV. ANALYSIS AND DISCUSSION

4.1 Factor Analysis

Many factors affect delay of building projects, researchers in this analysis limits the problems as follows: 1. Materials, 2. Labor, 3. Equipment, 4. Finance, 5. Environment, 6. Changes , 7. Government Policy, 8. Contract, 9. Scheduling and Control Technique.

Model analysisin this study stems from the answers to the questions from the questionnaire, but all the answers are qualitative, so for the purposes of analysis, qualitative data were given a score tobe quantitative data.

Feasibility test of whether factor analysis is necessary through the Kaiser Meyer Olkin (KMO) Measure of Sampling Adequacy and Bartlett Test of Sphericity tests. From test result on 31 question items, the value (KMO) Measure of Sampling Adequacy was 0.773 (> 0.5) and Bartlett Test of Sphericity was 0.000 (<0.05), so it was feasible for factor analysis (Table 1).

TABLE 1 Corelationn Test Kaiser Meyer Olkin (KMO)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.773
Bartlett's Test of Sphericity	Approx. Chi-Square	107.746
	df	10
	Sig.	.000

Next step is determine number of factors formed by approach on value of eigenvalue (the number of variants that can be explained by each factor).

Based on the result of the extraction, there are 7 optimal factors with eigenvalue value more than 1 with the variance percentage of 89,42% where the first factor has eigenvalue equal to 9,319 which can explain all item variation equal to 30,06% (Table 2).

TABLE 2
Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.319	30.060	30.060	9.319	30.060	30.060
2	6.315	20.370	50.431	6.315	20.370	50.431
3	4.262	13.749	64.179	4.262	13.749	64.179
4	2.793	9.010	73.189	2.793	9.010	73.189
5	2.141	6.906	80.095	2.141	6.906	80.095
6	1.678	5.414	85.509	1.678	5.414	85.509
7	1.213	3.913	89.422	1.213	3.913	89.422
8	.920	2.968	92.390			
9	.708	2.284	94.673			
10	.471	1.519	96.193			
11	.341	1.100	97.293			
12	.276	.889	98.182			
13	.203	.655	98.838			
14	.127	.411	99.249			
15	.085	.274	99.522			
16	.054	.174	99.696			
17	.043	.140	99.836			
18	.035	.113	99.950			
19	.016	.050	100.000			
20	6.981E-17	1.929E-16	100.000			
21	4.576E-17	1.476E-16	100.000			
22	2.767E-17	8.925E-17	100.000			
23	1.092E-17	3.521E-17	100.000			
24	2.961E-18	9.552E-18	100.000			
25	1.969E-18	6.353E-18	100.000			
26	3.856E-20	1.244E-19	100.000			
27	-2.545E-18	-8.208E-18	100.000			
28	-1.620E-17	-5.226E-17	100.000			
29	-3.020E-17	-9.742E-17	100.000			
30	-7.913E-17	-2.552E-16	100.000			
31	-1.052E-16	-3.393E-16	100.000			

Extraction Method: Principal Component Analysis.

After 7 factors were formed, next step was to distribute 31 question items into the seven factors based on loading factor using the component matrix (Table 3). Based on table matrix component can be seen that all the items very strong question into factor 1 (component 1), while the number of factors that formed as many as 7 factors. In order for all variables to fill into the 7 factors are formed optimally it takes factor rotation.

TABLE 3
Component Matrix

	Component						
	1	2	3	4	5	6	7
X26	.746	-.245	.468	-.120	-.380	.070	.029
X16	.746	-.245	.468	-.120	-.380	.070	.029
X7	.746	-.245	.468	-.120	-.380	.070	.029
X19	.746	-.245	.468	-.120	-.380	.070	.029
X21	.746	-.245	.468	-.120	-.380	.070	.029
X25	.686	-.567	-.069	-.089	.278	-.064	-.047
X30	.678	-.602	-.074	.004	.354	-.105	-.005
X4	.630	.607	-.050	-.370	.140	-.183	.032
X12	.630	.607	-.050	-.370	.140	-.183	.032
X13	.630	.607	-.050	-.370	.140	-.183	.032
X31	.628	-.409	-.028	-.106	.417	-.166	-.102
X23	.626	-.560	-.053	.099	.330	-.052	.015
X2	.575	.405	-.316	-.063	-.012	-.143	-.367
X27	.554	-.470	-.212	.049	.149	-.083	.073
X3	.543	.389	-.188	.345	-.027	-.101	-.099
X15	.547	.728	-.033	-.271	.098	-.116	.012
X20	.547	.728	-.033	-.271	.098	-.116	.012
X22	.186	.712	.101	-.067	.040	.217	-.175
X8	.089	-.702	-.179	.028	.056	-.295	.147
X14	.520	-.701	-.125	.084	.322	-.235	.020
X10	-.106	.176	.872	.224	.356	-.034	.053
X24	-.106	.176	.872	.224	.356	-.034	.053
X18	-.106	.176	.872	.224	.356	-.034	.053
X28	.619	.258	-.207	.688	-.121	.006	.070
X9	.619	.258	-.207	.688	-.121	.006	.070
X11	.619	.258	-.207	.688	-.121	.006	.070
X29	.464	.424	-.180	.545	.075	.158	.098
X17	.427	-.089	-.233	-.181	.293	.776	.072
X5	.427	-.089	-.233	-.181	.293	.776	.072
X6	-.143	.397	.200	-.031	.203	-.019	.775
X1	.048	-.104	-.562	-.253	-.290	-.146	.595

Extraction Method: Principal Component Analysis.
a. 7 components extracted.

Factor rotation required to produce factors that are not correlated with each other. The result of factor rotation is seen in the rotated component matrix table (Table 4).

TABLE 4
Rotated Component Matrix [a]

	Component						
	1	2	3	4	5	6	7
X4	.954	.061	.143	.123	-.025	.047	.083
X12	.954	.061	.143	.123	-.025	.047	.083
X13	.954	.061	.143	.123	-.025	.047	.083
X20	.927	-.099	.094	.205	.022	.059	.065
X15	.927	-.099	.094	.205	.022	.059	.065
X2	.660	.101	.044	.346	-.234	-.001	-.354
X22	.563	-.418	-.003	.194	.197	.220	-.136
X14	-.127	.945	.150	.076	-.069	-.002	-.032
X30	.027	.929	.249	.094	-.026	.157	-.059
X25	.073	.858	.310	.038	-.076	.184	-.100
X23	-.033	.847	.228	.164	.015	.172	-.043
X31	.214	.825	.168	.010	.052	.113	-.121
X27	-.009	.697	.202	.175	-.201	.107	.011
X8	-.360	.630	.051	-.106	-.239	-.195	.104
X16	.123	.235	.955	.093	.067	.048	-.031
X26	.123	.235	.955	.093	.067	.048	-.031
X7	.123	.235	.955	.093	.067	.048	-.031
X19	.123	.235	.955	.093	.067	.048	-.031
X21	.123	.235	.955	.093	.067	.048	-.031
X28	.146	.113	.143	.963	-.048	.012	.000
X9	.146	.113	.143	.963	-.048	.012	.000
X11	.146	.113	.143	.963	-.048	.012	.000
X29	.249	-.016	-.038	.809	.070	.197	.059
X3	.408	.065	.058	.656	-.044	-.035	-.120
X10	-.014	-.093	.098	-.042	.969	-.095	.120
X18	-.014	-.093	.098	-.042	.969	-.095	.120
X24	-.014	-.093	.098	-.042	.969	-.095	.120
X1	.033	.079	-.006	-.027	-.725	-.064	.561
X17	.119	.212	.095	.070	-.124	.939	.005
X5	.119	.212	.095	.070	-.124	.939	.005
X6	.185	-.218	-.135	.011	.275	.031	.827

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

4.2 Regression Analysis

To find out the variables are simultane and significant and what factors are the most dominant influence the delay of building construction projects.

TABLE 5
Multiple Linear Regression Equation

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	23.327	21.952		47.607	.000
	Material	2.938	2.432	.456	4.386	.000
	Tenaga_Kerja	1.040	2.099	.379	3.019	.000
	Peralatan	-.070	1.981	-.057	-.875	.000
	Keuangan	.608	1.167	.149	.233	.000
	Lingkungan	2.437	2.517	.406	3.968	.000
	Perubahan	-.142	.631	-.030	.284	.000
	Kebijakan_Pemerintah	-.369	1.451	-.073	.281	.000
	Kontrak	-.326	.449	-.695	-.186	.000
	Penjadwalan_Pengendalian	-.710	.701	-.590	-.043	.000

a. Dependent Variable: Keterlambatan_Proyek

Based on Table 5, the multiple linear regression equation in this study as:

$Y = 23.327 + 0.456\ X_1 + 0.379\ X_2 + (0.057)\ X_3 + (0.149)\ X_4 + 0.406\ X_5 + (0.030)\ X_6 + (0.073)\ X_7 + (0.0695)\ X_8 + (0.590)\ X_9 + \varepsilon$

Where:
Y : delay building projects
X_1 : material
X_2 : labor
X_3 : equipment
X_4 : finance
X_5 : environment
X_6 : change
X_7 : contract
X_8 : scheduling
X_9 : control techniques.

The regression coefficient of constant is 23,327, meaning the delay of building construction project is influenced factor by material, labor, equipment, finance, environment, change, government policy, contract, scheduling and control technique 23,327.

While the regression coefficient of several independent variables marked positive this means that the material factors, labor and environment have positive relationship with the delay of building construction projects.

Based on results of multiple linear regression equation obtained coefficient standardized β material factor 0.456, means the most dominant factor affect delay of building construction projects (Table 5).

To test effect of independent variables simultaneously on the delay of building construction project, used F count (F test). If the value of F test > F table value, the independent variable simultaneously have a positive and significant effect on the delay of building construction project. Test results simultaneously can be seen in Table 6.

TABLE 6
F Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	88.545	9	9.838	27.753	.000[b]
	Residual	235.312	18	13.073		
	Total	323.857	27			

a. Dependent Variable: Keterlambatan_Proyek

b. Predictors: (Constant), Penjadwalan_Pengendalian, Peralatan, Material, Lingkungan, Kontrak, Keuangan, Tenaga_Kerja, Kebijakan_Pemerintah, Perubahan

By comparing value of F test with F table, then F test is greater than F table. Thus, independent variables simultaneously have a positive and significant effect on delay of the building construction project.

V. CONCLUSION

From result and discussion of this research that have been described on the previous chapter, we can conclude that:

1. Based on the results of F test obtained, F test > F table, its mean material factors, labor, equipment, finance, environment, change, government policy, contract, scheduling and control techniques both simultaneously and partially influential positive and significant to the delay of building project of Dinas Cipta Karya and Tata Kota Bina Marga in Samarinda.
2. Based on the results of multiple regression values obtained, coefficient standardized β material factor 0.456, its mean material factor dominant factor affect of delay building projects Dinas Cipta Karya Tata Kota and Bina Marga in Samarinda.

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