A SUCCESS ANALYSIS OF SIDODADI-SABARA ROAD DEVELOPMENT PROJECT IN SEMARANG CITY FOR THE FISCAL YEAR 2019

Rachmat Mudiyono[1)], Antonius[2)], Achmad Sholikin Affendi[3)]

[1,2]Lecturers of Master Program of Civil Engineering,
Faculty of Civil Engineering, Universitas Islam Sultan Agung Semarang
[3]Students of Mater Program of Civil Engineering,
Faculty of Civil Engineering, Universitas Islam Sultan Agung Semarang

ABSTRACT

Economic growth in a country, especially in big cities such as Semarang Indonesia, has an impact to an increase in the number of vehicles passing through the area. This issue logically correlates to why the existing transportation facilities and infrastructure need to continuously improve. Semarang Public Works Department of Bina Marga as an extension of the central government has been continuously making efforts, including improving the quality and quantity of road sections in the areas deemed to need handling. These aim to expediting and accelerating traffic activities among regions. Using quantitative methods supported by SPSS V26 software, this study aimed (1) to investigate factors influenced the success of Sidodadi Sabara project, (2) to find out factors which most influenced the success of the project, and (3) to find out how successful the project was. From results of the analysis, it was recognized that the work management be the most dominant factor among the other factors. By anticipating this variable, the success rate of Sidodadi Sabara road project development would potentially increase. This research was expected to be an empirical input for related parties, especially the implementing agencies of the project.

Keywords: *Success analyses, construction project, Semarang city*

1. INTRODUCTION

To support an increase in the rate of economic growth, adequate facilities and infrastructure are needed. The economic development of a region will not be carried out smoothly without support to this aspect. An increase in the number of vehicles passing through an area, especially big cities such as the City of Semarang, Indonesia, will greatly affect the amount of infrastructure and means of transportation needed in the area. In order to facilitate inter-regional traffic as well as make it easier for motorists and drivers to travel, the Public Works Department of Bina Marga Semarang is planing to improve the quality of roads in areas considered strategic. Improvements will be made by making the road smoother and safer where the road is able to function more efficiently. Most importantly, the riders can pass safely and comfortably. The mission of the Public Works Office of Bina Marga Semarang is to manage and maintain in order that the roads and bridges under the supervision of the department can function properly. Sidodadi-Sabara Road Construction is one of the work packages for the road and bridge development and improvement belonging to the city government of Semarang for the fiscal year of 2019. Although it was beneficial, the implementations faced several obstacles such as scheduling, availability of the required heavy equipment, manpower, fees, etc. However, these were not the reason to decline the quality

standards as stipulated in the project plan. Syah (2004) explains that the success of project implementation can be viewed from different perspectives, for example; organization, and coordination, which will be further explained below: (1) Recognizing that the organizing stage is closely related to the planning stage; 2) Project organization is carried out by fulfilling functional requirements and maximizing efficiency; 3) Project personal responsibility and organizational responsibility are closely related to work plan to implement; (4) Tasks must be clearly defined; 5) If individual tasks and responsibilities in the relevant organizational structure have several types of tasks or if several types of tasks are the responsibility of a section, or other sections overlap, a work breakdown structure or an organizational work breakdown structure can be an alternative choice.

2. METHOD

Site of research

The road work of Sidodadi-Sabara with a total length of 1.978.68 meters and the function work of the arterial road belonged to the Road and Bridge Development and Improvement Work of the city government of Semarang for the fiscal year of 2019. See figure 1 below for the study site:

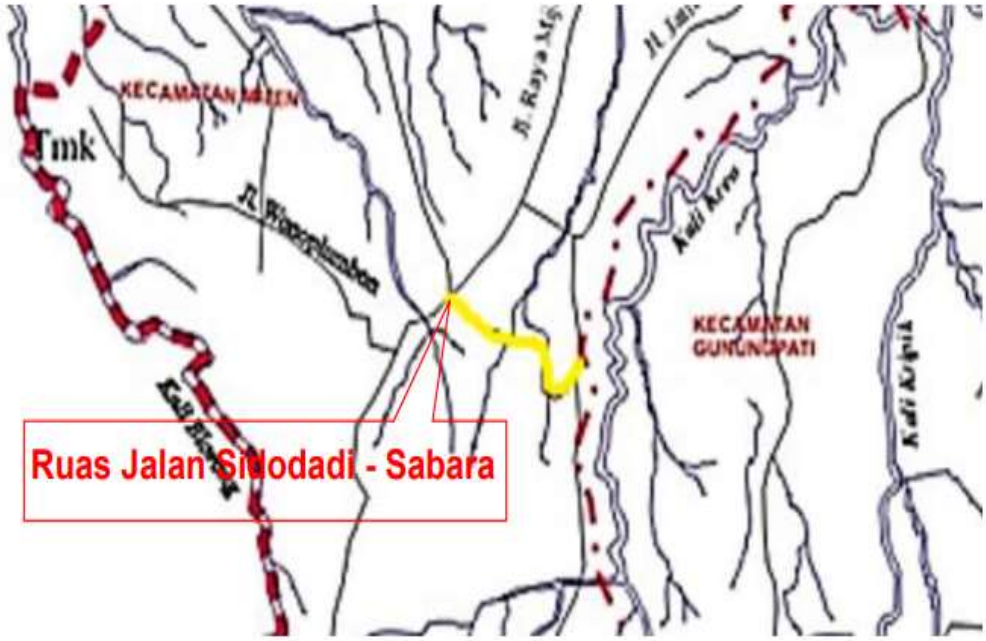

Figure 1. Site of research

Expansion of the economic zones, especially in Semarang, must be accompanied by development of the existing transportation facilities and infrastructure to accommodate the

increasing number of vehicles passing in the area. To cope with the issues, the Public Works Department of Bina Marga Semarang is planning to improve the quality of roads in the locations considered crucial. This aims not only to speed up the journey, but also to make it easier for motorists and drivers to cross all areas and reach their destination more quickly.

Research Approach

This research belongs to quantitative study applied using descriptive methods. Descriptive quantitative method is one type of study conducted systematically, planned and structured clearly from the beginning to the end, including research design. Sugiyono (2013: 13) argues that quantitative method works based on the philosophy of positivism. It is used to examine certain populations or samples. Sampling under the study is generally done randomly; Data collection was carried out using particular research instruments; Data analysis is made quantitative/statistical with the aim of testing the predetermined hypothesis. This research was conducted using a descriptive method to describe the object and research results. Sugiyono (2012: 29) defines descriptive studies as a method to describe object under a study through data or samples which have been collected as they are, without doing analyses and making conclusions which apply in general.

Data collection

This study belongs to descriptive quantitative research. The data in this study were taken through a document study. Analysis of the success factors for maintaining the long section road scheme was carried out by testing performance of supporting factors (Suprayitno, Soemitro, Maulana, & Hesna, 2019). There were different types of performance components. However, the quality of each varied. As a result, the analysis began with an explanation about the supporting factors for successful project implementation such as contractors, PPK, and supervisory consultants (See Figure 3.6), and was proceeded with identifying contractors, especially in aspects of human resources (HR), work management, materials, main equipment, and funding. The next step was to identify factors related to KDP on Human Resources (HR), Work Management, and Funding. The last was to identify supporting factors related to aspects of the Supervision Consultant's work in the fields of Human Resources (HR), Work Management, and Supervision Consultants. Experts who understood and ever managed the project of Sidodadi Sabara road construction would validate a number of factors in each aspect. See Figure 2 below for design of the study:

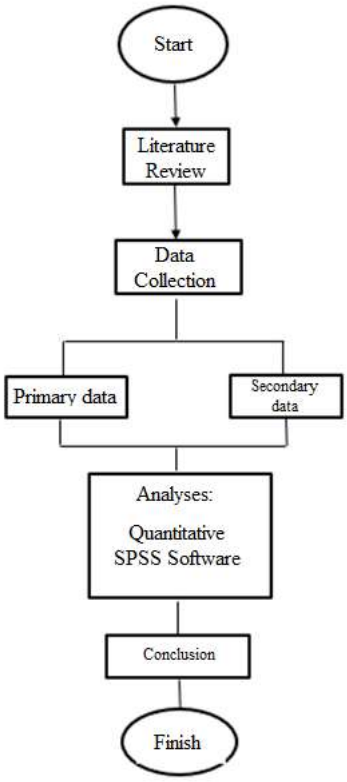

Figure 2. Research design

3. FINDINGS AND DISCUSSIONS

Data Analysis

Data analysis was carried out using the SPSS program as described in the SPSS Parametric Statistics exercise book (Santoso, 2000).

Validity test

Questionnaire is an instrument used in this study. Data processing was conducted by testing data obtained from the questionnaire to determine whether it was feasible or not. The quality test of the questionnaire was carried out by testing the validity and reliability tests.

The number of respondents (N) is 80, that the degree of freedom (d.f) is N – 2 = 46 – 2 = 44. Therefore, a significant level of 1% is obtained. At d.f of 40, the r table value is 0.2455 as presented in Table 1 below. To facilitate calculations, SPSS Version 26 software tools were used.

Table 1. r Table

Nilai Koefisien Korelasi (r) untuk taraf signifikan tertentu

df	0.10	0.05	0.02	0.01
40	0.2573	0.3044	0.3578	0.3932
41	0.2542	0.3008	0.3536	0.3887
42	0.2512	0.2973	0.3496	0.3843
43	0.2483	0.2940	0.3457	0.3801
44	0.2455	0.2907	0.3420	0.3761
45	0.2429	0.2876	0.3384	0.3721
46	0.2403	0.2845	0.3348	0.3683
47	0.2377	0.2816	0.3314	0.3646
48	0.2353	0.2787	0.3281	0.3610
49	0.2329	0.2759	0.3249	0.3575
50	0.2306	0.2732	0.3218	0.3542

Human resource factor

The following are the results of the validity test on 7 indicators as stated in the questionnaire for human resource factor:

Table 2. Validity test of the questionnaire for the human resource factor (X1)

Indicator	r count	r table	Information
X1.1	0.392	0.2845	Valid
X1.2	0.412	0.2845	Valid
X1.3	0.523	0.2845	Valid
X1.4	0.586	0.2845	Valid
X1.5	0.596	0.2845	Valid
X1.6	0.485	0.2845	Valid
X1.7	0,333	0.2845	Valid

Source: Primary data, 2023

Results of the validity test in table 2 were taken from the results of the questionnaire on the Human Resources factor. The results of these calculations show that the value of r count has a value between 0.333-0.596. It means that the value of r count is above the value of r table f 0.2455.

Work management factor

The following are results of the validity test of the 3 indicators as mentioned in the questionnaire for work management factor:

Table 3. Validity test of the questionnaire for the work management factor (X2)

Indicator	r count	r table	Information
X2.8	0.471	0.2845	Valid
X2.9	0.419	0.2845	Valid
X2.10	0.399	0.2845	Valid

Source: Primary data, 2023

Table 3 shows that the calculated r value ranges from 0.399 to 0.471. It means that the value of r count is above the value of r table of 0.2455 and is declared valid for all sub-variables.

Weather factor

The following are the results of the validity test of the questionnaire for the weather factor with one indicator:

Table 4. Validity test of the questionnaire for the weather factor (X3)

Indicator	r count	r table	Information
X4.11	0.398	0.2845	Valid
X4.12	0.423	0.2845	Valid
X4.13	0.388	0.2845	Valid

Source: Primary data, 2023

Table 4 shows that the calculated r value ranges from 0.388 – 0.423. It means the value of r count is above the value of r table of 0.2455 and is considered valid for all sub-variables.

Material factor

The following are the results of the validity test of the questionnaire on the material factor with three indicators:

Table 5. Validity test of the questionnaire for the material factor (X4)

Indicator	r count	r table	Information
X4.11	0.398	0.2845	Valid
X4.12	0.423	0.2845	Valid
X4.13	0.388	0.2845	Valid

Source: Primary data, 2023

Table 5 shows that the value of r count ranges from 0.388 – 0.423. It means that the value of r count is above the value of r table of 0.2455 and is regarded valid for all sub-variables.

Primary equipment factor

The following are the results of the validity test of the questionnaire for the main equipment factor with five indicators:

Table 6. Validity test of the questionnaire for the primary equipment factor (X5)

Indicator	r count	r table	Information
X5.14	0.367	0.2845	Valid
X5.15	0.413	0.2845	Valid
X5.16	0.343	0.2845	Valid
X5.17	0.420	0.2845	Valid
X5.18	0.378	0.2845	Valid

Table 6 shows that the value of r count ranges from 0.343 – 0.420. It means that the value of r count is above the value of r table of 0.2455 and is considered valid.

Funding factor

The following are the validity test results of the questionnaire of the funding factor with one indicator:

Table 7. Validity test of the questionnaire for the funding factor (X6)

Indicator	r count	r table	Information
X6.19	0.368	0.2845	Valid

Source: Primary data, 2023

Table 7 shows that the value of r count is 0.368. It means the value of r count is above the value of r table of 0.2455 and is declared valid.

Environment factor

The following are the validity test results of the questionnaire for the environment factor with one indicator:

Table 8. Validity test of the questionnaire for the environment factor (X7)

Indicator	r count	r table	Information
X7.20	0.372	0.2845	Valid

Source: Primary Data, 2023

Table 8 shows that the value of r count is 0.372. It means that the value of r count is above the value of r table of 0.2455 and is declared valid.

Reliability test

If the respondents responds to the questions consistently, the questionnaire is declared valid or reliable. Statistical Cronbach Alpha test was used to measure reliability of questions in this study. If the Cronbach Alpha coefficient of a question is greater than 0.6, as determined by SPSS V 26, the question item in the instrument is considered reliable.

Table 9. Reliability test

Factor	Cronbach Alpha	Limit value	Information
Human resource	0.734	0.6	Reliable
Work management	0.661	0.6	Reliable
Environment	0,729	0,6	Reliable
Materials	0.682	0.6	Reliable
General equipment	0.834	0.6	Reliable
Funding	0.672	0.6	Reliable
Weather	0,741	0,6	Reliable

Source: Primary Data, 2023

Table 9 shows that the values of Cronbach Alpha coefficient for all variables in this study range from 0.661 to 0.834. It means the values are regarded reliable as these are above the limit value of 0.6.

Multiple Linear Regression Analysis

Multiple regression analysis in the study was used to determine the effect of the independent variables on the dependent variable. The following are the results of the calculations:

Table 10. Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.326	2.652		1.254	.218
	X1	-.154	.075	-.219	-2.043	.048
	X2	.045	.044	.103	1.023	.313
	X3	.209	.197	.130	1.064	.294
	X4	.223	.110	.194	2.028	.050
	X5	.170	.131	.157	1.304	.200
	X6	.059	.095	.080	.619	.540
	X7	.387	.083	.510	4.683	.000
Source: Primary data, 2023						

Based on table 4.24, the following regression equation is obtained:

Y = 3.326 - 0.154X1 + 0.45X2 + 0.209X3 + 0.223X4 + 0.170X5 + 0.059X6 + 0.387X7

Information:

Y = Success of *Sidodadi Sabara* project
X1 = Human resource
X2 = Work management
X3 = Environment
X4 = Materials
X5 = General equipment
X6 = Funding
X7 = Weather

It was identified the Y equation with a constant of 3.326 means that every one unit of X1 will affect Y by -0.154 units, every one unit of X2 will affect Y by 0.45 units, every one unit of X3 will affect Y by 0.209 units, every one unit of X4 will affect Y by 0.223 units, every one unit of X5 will affect Y by 0.170 units, every one unit of X6 will affect Y by 0.059 units, every one unit of X7 will affect Y by 0.387 units

Based on the correlation coefficient values from the calculations using SPSS Version 26, the following R and R Square values is obtained:

Table 11. Correlation coefficient and coefficient of determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.866[a]	.750	.703	1.312

Source: Primary data, 2023

From Table 11, it is observed that the result of the coefficient of determination R Square is 0.750. This value indicates that all independent factors from X1 to X5 in this study explain the variance of the factors to which these factors have a success rate of 75%, while the remaining 25% is explained by other factors outside of this study.

Partial test

To measure and test the effect of the independent factors on the partial dependent factors, partial tests are often used. The hypothesis is accepted if t count is greater than t table. The hypothesis is rejected if t count is less than t table. d.f value is 46 for respondents (N =). from N – 2 = 45 – 2 = 43. The t value is 2.017, as shown in the t table below. Table 4.55 below displays the calculation results of t count:

Table 12. Value of t count and level of significance

Variable	B	t	Sig.
Human resource (X1)	22.737	6.879	0.00
Work management (X2)	23.571	12.914	0.00
Environment (X3)	7.738	2.439	0.019
Materials (X4)	14.456	5.713	0.00
General equipment (X5)	10.433	4.219	0.00
Funding (X6)	8.516	3.492	0.001
Environment (X7)	7.678	3.336	0.002

Source: Primary data, 2023

Table 13 shows the results obtained through data processing using the SPSS, t count > t table, t count between (2,439 and 6,879). In conclusion, all has an impact on the success of Sidodadi Sabara development project.

4. CONCLUSIONS AND SUGGESTIONS

Conclusions

The following are the conclusions obtained from the results of research and data processing:

1. Factors which can influence the success of *Sidodadi Sabara* project development are Human Resources 22.7%, Work Management 23.5%, Environment 7.7%, Materials 14.4%, General Equipment 10.4%, Funding 8.5 %, and Weather 7.7%.
2. The most dominant factor in the development of *Sidodadi Sabara* project is Work Management with a percentage of 23.5% where this factor has the largest percentage compared to the other factors.
3. The success rate of *Sidodadi Sabara* road construction project has reached 75%. This can be seen from the value of the coefficient of determination R Square of 0.750. This value indicates that all independent variables ranging from X1 to X5 explains that the factor variances have a success rate of 75%, where the remaining 25% is explained by other factors outside this study.

Suggestions

The following are the suggestions from our investigation:

1. Work management is the most dominant factor in the study. This finding can be used as input for related parties, especially the agencies working on *Sidodadi Sabara* road project. By anticipating the factor, the success rate of *Sidodadi Sabara* road project is expected to increase.
2. Because the results of this study have only revealed a success rate of 75% in which there is still another 25% of factors outside of this study, additional research is needed to comprehensively while entirely reveal the success of *Sidodadi Sabara* development project.

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