

Analysis Management Risk of Extension Vasa Hotel Project Construction in Surabaya

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Abstrak

The complex and lengthy construction process can hinder the achievement of goals, especially for renovation projects that previously contained existing buildings. In the implementation of a construction project, there may be a risk that may be a risk that is greater than that detected or calculated by the company, if monitoring and control of the incident or situation is not carried out. Data collection was carried out by distributing questionnaires via google form and interviewing the parties involved in the project. The collected data will then be analyzed using probability impact analysis to determine the magnitude of the risk and factor analysis to determine the risk variables that have the most dominant influence on the development of the project. Risk assessment uses a Likert scale to determine the level of probability and impact. Furthermore, risk mapping is carried out to determine mitigation efforts for the dominant risk. There are 37 risk variables obtained in the results of interviews and literature studies. From this research, it is known that 1 risk is included in the criteria of low risk, 30 risks are included in the criteria of moderate risk (medium risk), and 6 risks are included in the criteria of high risk. The data is then projected into the risk treatment table so that the results are 1 acceptable risk, 30 unacceptable risk, 6 undesirable risks. Risk mitigation for the dominant risks that have been identified stems from location problems and difficult site access, implementation schedules that have to adapt to the operating hours of existing buildings, changed designs and material increases.

Keywords :

Construction projects, Factor analysis, Mitigation, Risk, Risk management.

1. Introduction

A construction project is not only a process of realizing development from a non-existent form into existence but can also be a process of improving an existing building. Many factors of uncertainty and other unexpected things often cause failure to achieve project goals/targets. The amount of risk that occurs depends on the type of work, technology and risk control efforts undertaken. Work accidents are accidents that occur due to work or when carrying out work on the project. Broadly speaking, work accidents are caused by two factors, namely human actions that do not meet work safety (unsafe act) and unsafe environmental conditions (Budiono S 2005).

1.1 Risk Management

Project management consists of two words namely "Management" and "Project". Management in general is an effort to achieve a goal with minimal resources (efficient). Meanwhile, a project is a work plan with a certain achievement target that is completed within a certain time span. Management is an integrated process in which individuals as part of the organization are involved to maintain, develop, control, and run programs, all of which are directed at predetermined targets and continue over time (Dipohusodo 1996).

2. Methodology

This study uses a survey method in which there are two surveys, namely a preliminary survey by collecting data with interviews to get input and comments on factors that allow the occurrence of risk. As for the second survey, namely the actual survey by distributing questionnaires to respondents who are members of the Vasa Hotel Surabaya extension project. The purpose of the questionnaire distribution is to obtain results regarding the value of the frequency of work risks and the impact of risks that occur in the project.

Risk variables that often occur in projects are obtained from literature studies which will later be used as initial identification in the questionnaire that will be distributed.

Table 9 Risk Variable

No	Source of Risk	Variable
1	Environment	Natural disasters; Changes in the weather; Noise; Pollution; Public Opinion; Environmental impact (Godfrey, 1996)
2	Contraktual	Fire; Collapse; Accident (Godfrey, 1996) Availability of funds from the owner (Al Bahar & Crandal, 1990) and (Zhi, 1995) Misinterpretation of contracts (Kim & Bajaj, 2000)
3	Materials dan Equipment	Exchange rate; Bankruptcy (Godfrey, 1996) and (Kim & Bajaj, 2000)
4	Technical Implementation	Limited Land (Dharmika, 2014) Inappropriate work methods (Zhi, 1995) Design changes (Al Bahar & Crandall, 1990) Improper planning and estimation; Ignorance of project situation (Augustine et al, 2013)
5	Human Resources	Manpower and Resources (Dharmika, 2014)

3. Result And Discussion

3.1 Risk Identification

The risk identification process is carried out by distributing questionnaires to clarify, and find out whether the risk variables are relevant or not obtained from the results of the literature study on the project being reviewed.

3.2 Preliminary Survey

Based on the preliminary survey conducted, the results of the relevance test of risk variables will be obtained which in this study uses the Guttman scale, namely respondents are given questions whether they agree or not to the possibility of these risks in the project.

Based on the results of the survey to the respondents in table 2, it can be concluded that the risk variables obtained from the results of the literature study and interviews are relevant and can be distributed for the main survey.

Table 2 Calculation Results of Risk Variable Relevance Test

No	Variable	Agree	Don't Agree	Description
A. Technical Implementation				
X1	Mistakes in choosing work methods on renovation projects	25	1	ok
X2	Limited access to access for project activities.	26	0	ok
X3	Lack of coordination between consultants, contractors, owners, and hotel/mall operators	24	2	ok
X4	The movement of project vehicles in and out of the project site that can disturb hotel/mall guests	23	3	ok
X5	Mistakes of assumptions at the beginning of implementation	23	3	ok
X6	Difficult site location conditions	22	4	ok
X7	Projects that are hampered due to having to adjust to hotel/mall operating hours	21	5	ok
X8	There is a design change	25	1	ok
X9	The length of decision making from the consultant and owner	24	2	ok
X10	Incomplete design data	22	4	ok
X11	Unclear or incomplete design specifications	22	4	ok

X1 2	Unready/unapproved designs	24	2	ok
X1 3	Weak coordination with Subcontractors	18	8	ok
B. Human Resource				
X1 4	Unskilled workforce	21	5	ok
X1 5	Poor communication between workers	20	6	ok
X1 6	Lack of manpower	22	4	ok
X1 7	Low labor productivity	21	5	ok
X1 8	The occurrence of a work accident	22	4	ok
X1 9	Insufficient operator power	19	7	ok
X2 0	Inappropriate and incompetent selection of people in the project organizational structure.	20	6	ok
X2 1	Poor quality subcontractors	22	4	ok
C. Environment				
X2 2	Complaints from the community in the project environment	20	6	ok
X2 3	Natural disasters such as earthquakes, hurricanes, tsunamis, floods, landslides, volcanic eruptions.	21	5	ok
X2 4	Changes in weather are like sudden rain.	23	3	ok
X2 5	Increased noise and vibration during hotel construction or renovation	23	3	ok
X2 6	Unstable soil conditions	23	3	ok
X2 7	Security problems at the project site	21	5	ok
D. Materials and Equipment				
X2 8	Damage or loss of materials	22	4	ok
X2 9	Material price increase	22	4	ok
X3 0	Delay in delivery of materials from suppliers	23	3	ok
X3 1	Lack of material storage space	22	4	ok
X3 2	Damage to project equipment and equipment	25	1	ok
X3 3	Specifications of the work of subcontractors that are not in accordance with the contract	21	5	ok
E. Contractual				
X3 4	Incomplete documents	21	5	ok
X3 5	Late payment by owner	23	3	ok
X3 6	The ambiguity of the articles in the contract	14	12	ok

X3	Time estimation error	23	3	ok
7				

3.3 Main Survey

After obtaining the relevant variables in the Vasa Hotel Surabaya Extension Development project, a main stage questionnaire survey was conducted to conduct a risk analysis. After the data from the questionnaire has been successfully collected, then the main survey results are analyzed using the Severity Index (SI) method.

Based on table 3, it can be concluded that there is 1 risk that is included in the low or minor risk criteria, 30 risk variables are included in the medium risk or medium risk criteria, and 6 risk variables are included in the high or high risk criteria. risk.

Table 3. Risk Level Assessment

No	Variable	Probability P	Impact I	Risk Level (R = P x I)	Risk Category
A. Technical Implementation					
X1	Mistakes in choosing work methods on renovation projects	3	4	12	medium
X2	Limited access to access for project activities.	4	4	16	high
X3	Lack of coordination between consultants, contractors, owners, and hotel/mall operators	3	4	12	medium
X4	The movement of project vehicles in and out of the project site that can disturb hotel/mall guests	3	3	9	medium
X5	Mistakes of assumptions at the beginning of implementation	3	4	12	medium
X6	Difficult site location conditions	4	4	16	high
X7	Projects that are hampered due to having to adjust to hotel/mall operating hours	4	4	16	high
X8	There is a design change	4	4	16	high
X9	The length of decision making from the consultant and owner	4	4	16	high
X10	Incomplete design data	3	4	12	medium
X11	Unclear or incomplete design specifications	3	4	12	medium
X12	Unready/unapproved designs	3	4	12	medium
X13	Weak coordination with Subcontractors	3	4	12	medium
B. Human Resource					
X14	Unskilled workforce	3	4	12	medium
X15	Poor communication between workers	3	3	9	medium
X16	Lack of manpower	3	4	12	medium
X17	Low labor productivity	3	4	12	medium
X18	The occurrence of a work accident	2	3	6	rendah
X19	Insufficient operator power	3	3	9	medium
X20	Inappropriate and incompetent selection of people in the project organizational structure.	3	3	9	medium
X21	Poor quality subcontractors	3	3	9	medium
C. Environment					
X22	Complaints from the community in the project environment	3	3	9	medium
X23	Natural disasters such as earthquakes, hurricanes, tsunamis, floods, landslides, volcanic eruptions.	2	4	8	medium
X24	Changes in weather are like sudden rain.	3	4	12	medium
X25	Increased noise and vibration during hotel construction or renovation	3	4	12	medium
X26	Unstable soil conditions	3	3	9	medium
X27	Security problems at the project site	3	3	9	medium

D. Materials and Equipment					
X28	Damage or loss of materials	3	3	9	medium
X29	Material price increase	4	4	16	high
X30	Delay in delivery of materials from suppliers	3	4	12	medium
X31	Lack of material storage space	3	3	9	medium
X32	Damage to project equipment and equipment	3	3	9	medium
X33	Specifications of the work of subcontractors that are not in accordance with the contract	3	3	9	medium
E. Contractual					
X34	Incomplete documents	3	3	9	medium
X35	Late payment by owner	3	4	12	medium
X36	The ambiguity of the articles in the contract	3	3	9	medium
X37	Time estimation error	3	4	12	medium

3.4 Risk Mitigation

Risk mitigation can be used as input in dealing with risks that may occur. As the risk that is most likely to occur and cause a significant impact, in this study, risk mitigation was discussed with experienced respondents and several people who worked directly on the project as well as from several literature studies.

Table 4. Risk Mitigation

No	Variable	Risk Category	Mitigation Proposal
X2	Limited access to access for project activities.	high	Arrange site plans and appropriate flow patterns so as not to hinder implementation Conduct a preliminary site survey in order to ensure the condition of the project road access
X6	Difficult site location conditions	high	Conduct an initial site survey to be able to estimate the obstacles that will occur which can then be conveyed at the initial time of the tender
X7	Projects that are hampered due to having to adjust to hotel/mall operating hours	high	Coordinate between mall/hotel operations.
X8	There is a design change	high	Perform routine coordination of all project owners, contractors, and supervisory consultants (if any)
X9	The length of decision making from the consultant and owner	high	Provide options that can make it easier for owners to make decisions. Perform routine coordination with owner and consultant
X29	Material price increase	high	Place an order for materials in advance before the price increases as needed. Increase the number of suppliers that can be used as an option in order to get the lowest price.

The mitigation proposal above is only an input from the results of the risk assessment carried out and this study only describes the results of the analysis and mitigation efforts but is not followed up with monitoring of the risk control.

4. Conclusions

4.1 Conclutions

Based on the research that has been done, the following conclusions can be drawn:

1. In the Vasa Hotel Surabaya Expansion Project 37 risk variables were identified, originating from Technical Implementation, Human Resources, Environment, Materials and Equipment and Contractual.
2. From the research on the implementation of the Vasa Hotel Surabaya Expansion Project, the results obtained were 1 risk which was included in the low (low) risk or minor risk criteria, 30 risk variables were included in the medium risk criteria, and 6 risk variables were included in high risk criteria.

From the risk analysis, there are 6 dominant risks, these risks include:

- 1) Limited access to access for project activities
 - 2) Difficult site location conditions
 - 3) Projects that are delayed due to having to adjust to hotel/mall operating hours
 - 4) There is a design change
 - 5) The length of decision making from the consultant and owner
 - 6) Increase in material prices
3. From the dominant risk that is most likely to occur and has a significant impact, risk control is carried out in several ways:
 - 7) Arrange site plans and appropriate flow patterns so as not to hinder implementationConduct a preliminary site survey in order to ensure the condition of the project road access
 - 8) Conduct an initial site survey to be able to estimate the obstacles that will occur which can then be conveyed at the initial time of the tender
 - 9) Coordinate between mall/hotel operations.
 - 10)Perform routine coordination of all project owners, contractors, and supervisory consultants (if any).
 - 11)Provide options that can make it easier for owners to make decisions.
 - 12)Perform routine coordination with owner and consultant
 - 13)Place an order for materials in advance before the price increases as needed.
 - 14)Increase the number of suppliers that can be used as an option in order to get the lowest price.

4.2 Suggestions

The suggestions that can be given from the results of this study are as follows:

1. Parties involved in similar projects can use the risks identified in this study, especially those that include dominant risks, as a reference in handling hotel renovation or expansion projects.
2. The parties involved in the renovation or extension project are advised to conduct an initial survey and also arrange the site plan as well as possible so that it does not become an obstacle during implementation.

References

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