Research Paper

Risk Control Provincial Road Construction Project on Time Performance in Road Section Sumur – Taman Jaya Banten

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ABSTRACT: *The road is means transportation land that has role important in develop potential an area, so that all areas can reach level equitable development . Road construction intended For make it easier connection between area and improve level economy community . Based on the Decree of the Governor of Banten in 2023 concerning the status of roads Province , Jalan Sumur - Taman Jaya is one of the Provincial Roads the longest one I have . With condition road rocky and yet get touch pavement road . This road connect from center hustle Subdistrict Well , Regency Pandeglang towards the Ujung Kulon National Park area which is an Indonesian Geopark. With matter The construction of the Sumur – Taman Jaya road is Project Regional Strategic Plan 2023. Research This aiming identify and analyze risk in implementation Construction work of Sumur Road – Taman Jaya towards performance time . The analysis used in study This is analysis descriptive and analytical hierarchy process (AHP) as well as risk level analysis . from analysis conducted 4 risks were found into the risk high , namely , Congestion cash flow , Ignore cost No unexpected , Condition difficult location reachable , Lack of experience manager project .*

KEYWORDS: *Management Risk , Analysis Risk , Road Construction, Provincial Roads*

I. INTRODUCTION

The road is means transportation land that has role important in develop potential an area, so that all areas can reach level equitable development . Development must be walk with good and able enjoyed by all public use prosperity and prosperity life public.

In accordance with one of The objectives of the 2005-2025 Banten Province RPJPD are : Realization Equality development and quality growth Economy . The construction of the Sumur – Taman Jaya road is a must have implemented . So in 2024 the construction work of Jalan Sumur Taman Jaya will be Project Regional Strategy 2024 .

Implementation project construction No Once Can avoidable from risk . Risks that affect performance time result in delay work so that obstruction development welfare For society . Therefore That study This to study about control risk work development road Province The Sumur – Taman Jaya road section towards performance time For look for risk dominant and mitigating risk dominant .

II. LITERATURE REVIEW

Project Construction

Project is a activities that create mark in A business / condition certain unique and must done in prone to the time that has passed determined . While management project is application from knowledge , skills and tools for reach need project . Knowledge , skills and tools in management project can grouped become activity or process[10]. Although principles management project applicable For Variety project , but Of course There is A little difference or emphasis between One type project with type project other depends to scale and type project That himself [14].

Construction is a activity build means and infrastructure . In A field architecture or technique civil , a construction is also known as building or unit infrastructure in an area or several areas. In the field of architecture and engineering civil , construction is a process consisting of from building or assembly infrastructure . Usually jobs managed by managers project and supervised a manager construction , engineer construction , or architect project . In summary construction defined as object overall building consisting of from parts structure . For example , Construction Structure Building is form or building in a way overall from structure building . Another example is construction road highway , construction bridge , construction ships , and others[16].

RISK MANAGEMENT
management risk is structured way For identify and measure risk and advance , choose as well as arrange choice For handle risk[10] . Management process management risk consists of of 6 steps , namely :
1. Planning Management Risk , planning covering step decide How approach and plan activity management risk For project .
2. Identification Risk , recognizing types possible and general risks faced by every perpetrator business .
3. Analysis Risk Qualitative , the process of assessing impact and possibilities from the risk that has been identified .
4. Analysis Risk Quantitative is the identification process numerically probability from every risks and consequences from every project .
5. Planning Response Risk , the process for minimize level risks faced until the limits that can be accepted .
6. Risk Control and Monitoring , supervising the risk that has been identified , monitored remaining risks , and identify risk new .

III. RESEARCH METHODS

Study done with use method qualitative research conducted through collect data and information For identify risk or problem as well as look for risk dominant and also mitigation necessary risks done For Provincial Road Construction Work Section of the Sumur – Taman Jaya Road , Regency Pandeglang , Banten Province .
For the data to be used is :
1. Primary Data
   Data obtained in a way direct For gather information in answer problem study obtained and distributed survey. Questionnaire or surveys that have been arranged use For make it easier answer questions that have been provided with distribute questionnaire to Respondent that is consultants who are in the well-park victorious .
2. Secondary Data
   Secondary data is the data obtained or collected from various type sources that have been there.
   Data processing and analysis carried out is :
1. Validity and Reliability Test
2. Descriptive Analysis
3. Analytical Hierarchy Process (AHP)
4. Risk Level Analysis

VALIDITY TEST
Validity test is a testing conducted For know truth , validity or not a questionnaire that is measured . Testing done based on person correlation. In matter This each individual question item must have total item correlation above or The same with 0.30 (>0.30/=0.30). Following is the formula used in validity testing :

$$r_{xy} = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n - \sum X^2 - (\sum X^2)} \sqrt{n \sum Y^2 - (\sum Y^2)}}$$

Where:
r = Product Moment Coefficient
X= Score of each variable in the questionnaire
Y= Total score of all variable questionnaire
n= Number Respondents
Following is criteria that can be used in testing validity :
a. If the calculated r ≥ 0.25 indicates that valid variables
b. If the calculated r < 0.25 indicates that variable invalid means must be eliminated .

RELIABILITY TEST

Reliability test defined as testing For evaluate how far the measurement can give relative results consistent moment done repetition measurement on the same subject . Reliability test Cronbach's Alpha formula , for show how far the tool measuring can trusted or reliable in testing , following there is Cronbach's Alpha formula :

$$rI = \left(\frac{K}{(K-1)}\right)\left(1\frac{\sum \sigma_b^2}{\sigma_1^2}\right)$$

Where:
rI = Reliability instrument
K = Amount grain variable
$\Sigma \sigma b\ 2$ = Total Variables Item
$\sigma\ 12$ = Total Variable
Criteria testing :
a) If the Cronbach alpha value ≥ 0.60 indicates all over valid variables are also reliable variables
b) If the Cronbach alpha value < 0.60 indicates all over valid variables are also unreliable variables .

DESCRIPTIVE ANALYSIS

Descriptive Analysis is method purposeful data analysis For describe or to summarize characteristics main from a data set without make conclusion or prediction . Analysis This calculate the mean and mode for see tendency evaluation a data. Mean is average value of a data or variable. Mode is values that tend to often go out in a variable.

ANALYTICAL HIERARCHY PROCESS (AHP)

Thomas L. Saaty developed the Analytical Hierarchy Process (AHP) in the 1970s, and used it For help in determine priority based on complex criteria with compare various choice in a way in pairs . Method This can create assessment factors priority from a condition incident .

calculation steps for AHP analysis are as following :
- Compilation Priority based on comparison in pairs with use Likert scale . Likert scale is method measurements used For measure attitude , opinion , or perception somebody to a statement with give choice level agreement or disagreement .

Table 1 Likert Scale Values

Intensity	Information
1	Second same element importance
3	The one element more A little important than other elements
5	The one element more important than other elements
7	Clear elements more absolute from the elements other
9	One element absolute important than other elements
2,4,6,8	Values between two adjacent considerations

- Look for mark priority

After Compiling the Matrix in comparison in pairs with scale ikert , next calculated eigen value. Eigen value is value that shows weight priority a levels assessment . Here method look for mark priority :

$$Pi = \sum_{i=1}^{n} = \frac{Vij}{a_{ij}}$$

Information:
Pi = Priority Value
Vij = Total Weight from the umpteenth line
n = Number of sub factors

- Calculation Ratio Consistency

Ratio consistency is method calculate and determine evaluation Respondent consistent or no . Here method count mark ratio consistency :
Calculating Eigen Value max

$$\lambda \text{ Max} = \left[\sum_{i-1}^{n} \frac{bi}{Pi}\right] : n$$

Calculating the Consistency Index (CI)

$$CI = \frac{\lambda \text{ Maks} - n}{n - 1}$$

Count Ratio Consistency

Ratio Value consistency stated consistent if mark ratio consistency (CR)< 10% or 0.1

$$CR = \frac{CI}{RI}$$

Random Index (RI)

n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49	1.51	1.48	1.56	1.57	1.58

Source: [10]

Sumber: Prof. Saaty,

RISK LEVEL ANALYSIS

Probability Impact Matrix works For know level risk . How to calculate the Probability Impact Matrix is multiplication between frequency (probability) and impact of a risk .

R = P x I
R = Coefficient level risk
P = Frequency (Probability)
I = Impact

IV. FINDINGS AND DISCUSSION

Project overview

The Sumur – Taman Jaya Road Section Development Project is located in the District Well , Regency Pandeglang , Banten Province , which is 94 km from center Mother city Pandeglang . The road section has a length of 23 km which connects the sub-district center Well going to to the Ujung Kulon National Park Area . In This Road Construction Project funded by the 2024 Banten Provincial Budget, with term time 300 days of work calendar Contractor must working on the construction of 13 km of road which is located in Sumur – Taman Jaya Road Section .

Along 13 km of construction road , passing 3 villages that is Tunggal Jaya Village , Village Cigorondong , and Ujung Jaya Village . Type The pavement that will be under construction is Rigid pavement or concrete . Besides development road , in package This also built 6 pieces bridge with Void Slab construction . The width of the road to be built is 6 meters with thickness 25 cm concrete and quality FS' 45 concrete .
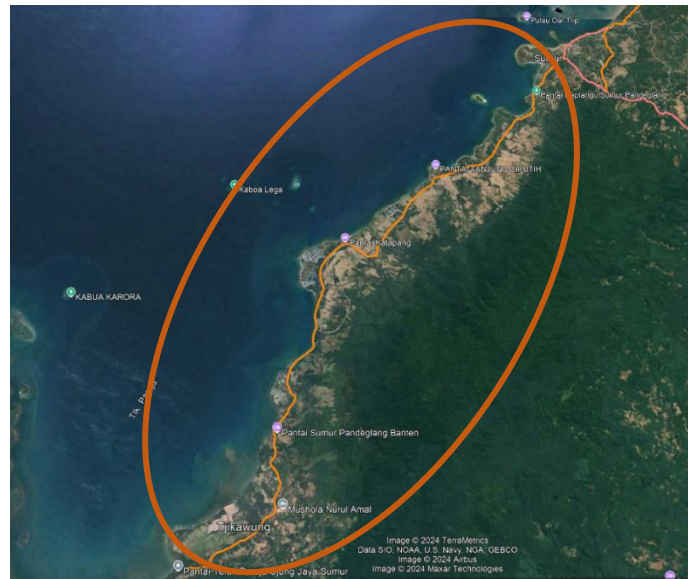
Figure 1 Sumur - Taman Jaya Road Section

Stage First

Stage First aiming For sorting influential variables according to the experts . Variables This own influence to delay time work .

Table 2 Variables risk

NO	RISK IDENTIFICATION	REFERENCE
	MATERIAL	
X1	Ascension material price	Uswatun Good morning , 2023
X2	Scarcity material	Rozatul Farid
X3	Delay material delivery	Uswatun Good morning , 2023
X4	Poor quality material Good	Uswatun Good morning , 2023
X5	Volume and type of material do not appropriate	Uswatun Good morning , 2023
X6	Excess use of materials (waste material)	Rozatul Farid, 2015
X7	Change Material specifications	Rozatul Farid, 2015
X8	Theft of materials	Rozatul Farid, 2015
	EQUIPMENT	
X9	Equipment No complete	Rozatul Farid, 2015
X10	Equipment that has been No worthy	Rozatul Farid, 2015
X11	Delay delivery equipment	Rozatul Farid, 2015
X12	Error placement equipment	Edwin Moerdianto , 2022
X13	Lost Equipment	Edwin Moerdianto , 2022
	LABOR	
X14	Availability power underwork	Uswatun Good morning , 2023
X15	Ability / power skill underwork	Uswatun Good morning , 2023
X16	Come / start Work late , go home more beginning	Uswatun Good morning , 2023
	CONTRACT	

X17	Change work *(Change order)*	Uswatun Good morning , 2023
	FINANCIAL	
X18	Congestion cash flow	Rozatul Farid, 2015
X19	No notice cost No unexpected	Rozatul Farid, 2015
	PHYSICAL CONDITIONS AT THE LOCATION	
X20	Condition difficult location reachable	Rozatul Farid, 2015
X21	Condition bad location and *site*	Rozatul Farid, 2015
	NATURAL CONDITIONS	
X22	Earthquake Earth	(Saputro DH, 2021)
X23	Tsunami	(Saputro DH, 2021)
X24	Weather Bad	Edwin Moerdianto , 2022
	SOCIAL CONDITIONS	
X25	Demonstration , rejection location project	Uswatun Good morning , 2023
X26	Riots / riots .	Uswatun Good morning , 2023
X27	Condition culture and customs customs public around obstructing location project	Uswatun Good morning , 2023
X28	Strike Work	Uswatun Good morning , 2023
	PROJECT MANAGEMENT	
X29	Lack of experience manager project	Hernoni , et al ., 2015
X30	Lack of communication and coordination between parties involved in project .	Hernoni, et al., 2015
X31	Lack of supervision to contractors and suppliers	Hernoni, et al., 2015
X32	Lack of control to timetable implementation work	Hernoni, et al., 2015
	GOVERNMENT POLICY/LEGALIZATION	
X33	Change policy political government that makes things difficult settlement project	Kardian Susilo S, 2017
X34	Instability monetary	Kardian Susilo S, 2017
	CONSTRUCTION METHODS AND TECHNOLOGIES	Kardian Susilo S, 2017
X35	Change method construction	Kardian Susilo S, 2017
X36	Incorrect design or No complete	Kardian Susilo S, 2017
X37	Election method under construction appropriate	Kardian Susilo S, 2017
	Health and Safety Work	Kardian Susilo S, 2017
X38	Happen accident Because Error man	Kardian Susilo S, 2017
X39	Happen Accident Due to Failure Equipment	Kardian Susilo S, 2017
X40	Health and Safety Procedures Poor Work (K3)	Kardian Susilo S, 2017

Source : Processed results Alone , 2025

Variables beginning This obtained from secondary data in the form of existing research previously . The variables that are distributed to the experts is form ' yes ' or ' no ' options from each variables presented . Then the experts will choose variable the influential to time or No .

Profile respondents to the questionnaire stage First is Consultant Supervisors who have background behind experienced in work development road Province minimum 10 years . Here This is profile data expert shown in table under

Table 3 Profile Expert

No	Name	Type Sex	Age	Length of Experience Work	Educator Final	Company name	Company Type	Position
R0 1	Kun Three N	Man	45-50	15-20 years	S1	PT Seecons	Consultant	Inspector
R0 2	Henry	Man	45-50	15-20 years	S2	Virama Works	Consultant	Inspector
R0 3	Muji Raharjo	Man	>50	>20 Years	S2	PT. Fajar Consultant	Consultant	Team Leader
R0 4	Amizar Gautama	Man	>50	>20 Years	S2	PT. SEECONS	Consultant	Team Leader
R0 5	Kiagus Lukman	Man	>50	>20 Years	S1	PT. INACON	Consultant	Inspector

Source : Processed results Alone , 2025

At the stage First this , will sorting the most influential variable in performance time . With see the total answers given if more from half from the experts agree variable the so variable the enter in gathering variables to be used at stage to two . Here This results validation variables by experts who will shown in table 4.3

Table 4 Validation Results Expert

NO	RISK IDENTIFICATION	When Risk Happen Whether Influential Against Time Performance					Conclusion
		Yes No	Yes No	Yes No	Yes No	Yes No	
	MATERIAL						
X1	Ascension material price	YES	YES	YES	YES	YES	Relevant
X2	Scarcity material	YES	YES	YES	NO	YES	Relevant
X3	Delay material delivery	YES	YES	YES	NO	YES	Relevant
X4	Poor quality material Good	YES	NO	YES	YES	YES	Relevant
X5	Volume and type of material do not appropriate	YES	YES	YES	YES	YES	Relevant
X6	**Excess use of materials (waste material)**	**No**	**No**	**No**	**No**	**YES**	**No Relevant**
X7	**Change Material specifications**	**No**	**YES**	**No**	**No**	**YES**	**No Relevant**
X8	Theft of materials	YES	NO	YES	NO	YES	Relevant
	EQUIPMENT						
X9	Equipment No complete	YES	YES	YES	YES	YES	Relevant
X10	Equipment that has been No worthy	YES	YES	YES	YES	YES	Relevant
X11	Delay delivery equipment	YES	YES	YES	YES	YES	Relevant
X12	Error placement equipment	YES	YES	YES	No	YES	Relevant
X13	Lost Equipment	YES	YES	YES	No	YES	Relevant
	LABOR						
X14	Availability power underwork	YES	YES	YES	YES	YES	Relevant
X15	Ability / power skill underwork	YES	YES	YES	YES	YES	Relevant
X16	Come / start Work late , go home more beginning	YES	YES	YES	YES	YES	Relevant
	CONTRACT						
X17	Change work *(Change order)*	No	No	YES	YES	YES	Relevant
	FINANCIAL						
X18	Congestion cash flow	YES	YES	YES	YES	YES	Relevant
X19	Ignore cost No unexpected	No	YES	No	YES	YES	Relevant
	PHYSICAL CONDITIONS AT THE LOCATION						
X20	Condition difficult location reachable	YES	YES	YES	No	YES	Relevant

X21	Condition bad location and *site*	No	YES	YES	YES	YES	Relevant
	NATURAL CONDITIONS						
X22	Earthquake Earth	Yes	Yes	Yes	No	Yes	Relevant
X23	Tsunami	Yes	Yes	Yes	No	Yes	Relevant
X24	Weather Bad	YES	No	YES	No	YES	Relevant
	SOCIAL CONDITIONS						
X25	Demonstration , rejection location project	YES	YES	YES	No	YES	Relevant
X26	Riots / riots .	YES	YES	YES	No	YES	Relevant
X27	**Condition culture and customs customs public around obstructing location project**	**No**	**No**	**YES**	**No**	**YES**	**No Relevant**
X28	Strike Work	YES	YES	YES	No	YES	Relevant
	PROJECT MANAGEMENT						
X29	Lack of experience manager project	YES	YES	YES	YES	YES	Relevant
X30	Lack of communication and coordination between parties involved in project .	Yes	Yes	Yes	Yes	Yes	Relevant
X31	Lack of supervision to contractors and suppliers	No	Yes	Yes	Yes	Yes	Relevant
X32	Lack of control to timetable implementation work	Yes	Yes	Yes	Yes	Yes	Relevant
	GOVERNMENT POLICY/LEGALIZATION						
X33	Change policy political government that makes things difficult settlement project	Yes	No	Yes	Yes	Yes	Relevant
X34	Instability monetary	Yes	Yes	Yes	Yes	Yes	Relevant
	CONSTRUCTION METHODS AND TECHNOLOGIES						
X35	Change method construction	Yes	No	Yes	Yes	Yes	Relevant
X36	Incorrect design or No complete	Yes	Yes	Yes	Yes	Yes	Relevant
X37	Election method under construction appropriate	Yes	Yes	Yes	Yes	Yes	Relevant
	Health and Safety Work						
X38	Happen accident Because Error man	Yes	Yes	No	Yes	Yes	Relevant
X39	Happen Accident Due to Failure Equipment	Yes	Yes	Yes	No	Yes	Relevant
X40	Health and Safety Procedures Poor Work (K3)	Yes	Yes	No	Yes	Yes	Relevant

Source : Processed results Alone , 2025

based on Expert opinion obtained three variable No relevant performance time . Three variables that are not relevant the removed and 37 variables were obtained that influenced performance . time as stated in table 4.4

Table 5 Validated Variables

NO	RISK IDENTIFICATION	NO	RISK IDENTIFICATION
	MATERIAL		**NATURAL CONDITIONS**
X1	Ascension material price	X22	Earthquake Earth
X2	Scarcity material	X23	Tsunami
X3	Delay material delivery	X24	Weather Bad
X4	Poor quality material Good		**SOCIAL CONDITIONS**
X5	Volume and type of material do not appropriate	X25	Demonstration , rejection location project

X8	Theft of materials	X26	Riots / riots .
	EQUIPMENT	X28	Strike Work
X9	Equipment No complete		**PROJECT MANAGEMENT**
X10	Equipment that has been No worthy	X29	Lack of experience manager project
X11	Delay delivery equipment	X30	Lack of communication and coordination between parties involved in project .
X12	Error placement equipment	X31	Lack of supervision to contractors and suppliers
X13	Lost Equipment	X32	Lack of control to timetable implementation work
	LABOR		**GOVERNMENT POLICY/LEGALIZATION**
X14	Availability power underwork	X33	Change policy political government that makes things difficult settlement project
X15	Ability / power skill underwork	X34	Instability monetary
X16	Come / start Work late , go home more beginning		**CONSTRUCTION METHODS AND TECHNOLOGIES**
	CONTRACT	X35	Change method construction
X17	Change work *(Change order)*	X36	Incorrect design or No complete
	FINANCIAL	X37	Election method under construction appropriate
X18	Congestion cash flow		**Health and Safety Work**
X19	Ignore cost No unexpected	X38	Happen accident Because Error man
	PHYSICAL CONDITIONS AT THE LOCATION	X39	Happen Accident Due to Failure Equipment
X20	Condition difficult location reachable	X40	Health and Safety Procedures Poor Work (K3)

Stage two

Respondents in study This is those who implement , supervise and manage development road concrete , both inside or outside location projects , including owner project , consultant (supervisor), and contractor (implementer). Of the 37 variables performance time given to respondents , factors main reason delay asked . Questionnaire Control Risk Provincial Road Development Project On Work Time Performance Well – Taman Jaya. Number Respondents who filled in questionnaire as many as 23 people with the depicted profile in Table 4.5

Table 6 Profile Respondents

No	Position	Age :	Company/ Agency	Experience	Education
1	Leader Project	40 - 50	PT, independent work of Tunas Mandiri civilization	11-15 years	S1
2	Support Team Board of Directors field / astek	40 - 50	employment office general and arrangement room province Banten	15-20 years	S1
3	Support Team Board of Directors field / astek	31 - 40	Dpupr	6-10 years	S1
4	Support Team Board of Directors field / astek	50 - 60	DPUPR	6-10 years	S1
5	Support Team Board of Directors field / astek	31 - 40	employment office General and Spatial Planning of Banten Province	11-15 years	S1
6	Support Team Board of Directors field / astek	40 - 50	Dpupr Banten Province	6-10 years	S2
7	Support Team Board of Directors field / astek	40 - 50	Public Works and Public Housing Agency of Banten Province	11-15 years	S1
8	Support Team Board of Directors field / astek	40 - 50	Public Works and Public Housing Agency of Banten Province	15-20 years	S1
9	Support Team Board of Directors field / astek	31 - 40	DPUPR	11-15 years	S1
10	Head Section / Board of Directors Field	40 - 50	DPUPR	11-15 years	S1
11	Support Team Board of Directors field / astek	31 - 40	DPUPR	11-15 years	S1
12	Experts	18 - 30	PT. Fajar Consultant	1-5 years	S1
13	Support Team Board of Directors field / astek	31 - 40	Public Works and Public Housing Agency of Banten Province	6-10 years	S1
14	Staff Administration	40 - 50	PT RIS Putra Delta	15-20 years	S1

15	Support Team Board of Directors field / astek	31 - 40	Public Works and Public Housing of Banten	1-5 years	S1
16	Support Team Board of Directors field / astek	31 - 40	DPUPR	15-20 years	S1
17	Support Team Board of Directors field / astek	40 - 50	PUPR	11-15 years	S1
18	Site Manager	18 - 30	PT. RIS PUTRA DELTA	1-5 years	S1
19	Technical Assistant	40 - 50	DPUPR province Banten	15-20 years	S1
20	Head Section / Board of Directors Field	40 - 50	Department of Public Works and Public Housing Banten	11-15 years	S2
21	Road and Bridge Supervisor	40 - 50	Public Works and Public Housing Agency of Banten Province	15-20 years	S1
22	Support Team Board of Directors field / astek	31 - 40	Department of Employment General and Spatial Planning of Banten Province	11-15 years	S1
23	Team Leader	40 - 50	PT .	15-20 years	S2

Reliability Test

Testing reliability will done with use Cronbach's alpha coefficient . Cronbach's alpha coefficient value counted using the SPSS 22.00 program. This test done at the delay level to activity from the selected variable data at the stage First .

Table 7 Reliability Test Calculation Frequency Risk

Cronbach's Alpha	N Of Items
.925	37

Source : Processed Results Alone , 2025

Table 8 Reliability Test Calculation Impact Risk

Cronbach's Alpha	N Of Items
.949	37

Source : Processed Results Alone , 2025

Cronbach's alpha coefficient value for variable data delay in activity project road Province is of 0.925 for Frequency Risk and 0.949 Impact Risk both of them more big from 0.6. Then variable This can it is said can it is said reliable .

Validity Test

Testing validity done with notice Valid total correlation value can determine is the data valid with comparing the existing corrected item total correlation in the data, as following :
• If r is calculated positive , then variable is valid
• If r is calculated negative , then variable the invalid

Calculation r value is done with SPSS 22.00 program assistance . This test done to Variables delay to activities . The results of the validity test is as following :

Table 9 Validity Test Calculation Frequency Risk

Item-Total Statistics Frequency and Impact

	Frequency				Impact			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
X1	83.2609	443,292	.576	.922	78.1739	580,423	.609	.947
X2	82.9130	440,356	.475	.923	77.9565	588,043	.382	.949
X3	81.8696	445,664	.330	.925	77.4348	574.257	.508	.948
X4	82.6522	438,328	.667	.921	77.7391	581,838	.436	.948
X5	82.7391	433,656	.763	.920	77.9130	588.265	.317	.949
X8	83.0000	437,182	.590	.922	78.2609	587,292	.323	.949
X9	82.8261	443.423	.548	.922	77.8696	580,482	.533	.948
X10	82.6522	442,055	.529	.922	77.6522	568,874	.690	.947

X11	82.2609	446.111	.407	.924	77.3043	574,312	.505	.948
X12	82.8696	454,846	.299	.925	77.7391	572,383	.672	.947
X13	83.0000	434,727	.665	.921	78.0000	575,636	.503	.948
X14	82.3478	446,419	.370	.924	77.3043	574,403	.627	.947
X15	82.1304	444,028	.463	.923	77.3913	569,704	.591	.947
X16	82.4783	428,715	.711	.920	77.4783	571,443	.543	.948
X17	81.9565	442.225	.446	.923	77.4783	569,534	.599	.947
X18	81.6087	446,340	.373	.924	76.7826	556,269	.709	.946
X19	81.9130	446,992	.339	.925	76.9130	561,265	.657	.947
X20	81.8261	434,059	.564	.922	77.0435	557,680	.616	.947
X21	82.5217	443,079	.498	.923	77.4783	554,897	.876	.945
X22	82.9565	457,407	.140	.928	78.0000	585,727	.288	.950
X23	83.7391	464,474	.090	.926	78.3913	586,976	.348	.949
X24	82.6957	443,949	.513	.922	77.8261	575,059	.489	.948
X25	82.8696	454,755	.285	.925	78.0435	588,407	.270	.950
X26	83.5217	464,261	.098	.926	78.3043	586,130	.346	.949
X28	83.3478	454,510	.382	.924	78.1304	586,391	.349	.949
X29	81.9130	437,356	.532	.922	76.9565	564,862	.627	.947
X30	82.0435	438,134	.630	.921	76.8261	563,423	.680	.947
X31	82.8696	432,937	.749	.920	77.5652	569,802	.602	.947
X32	82.7391	441.111	.468	.923	77.5217	571,625	.638	.947
X33	82.9565	445,498	.426	.923	77.8261	557,877	.733	.946
X34	83.5217	455,443	.424	.924	78.0870	563,719	.693	.946
X35	82.7391	448.111	.444	.923	77.5652	568,802	.646	.947
X36	82.4783	432,715	.614	.921	77.3478	554,874	.812	.945
X37	82.5217	435,988	.681	.921	77.5652	558,984	.755	.946
X38	83.1304	438,028	.639	.921	77.9565	562,862	.661	.947
X39	83.2609	446,656	.638	.922	78.2174	576,087	.594	.947
X40	82.3043	439,221	.588	.922	77.6957	570,312	.533	.948

Source : Processed Results Alone , 2025

Descriptive Analysis

Objective from analysis descriptive is analyze data based on mean and mode values of results questionnaire stage second . The mean value is the average of questionnaire data entry each variable , value This can show frequency or the highest impact or often happened . While For the mode value is frequent values go out in assessment of each variable , value This describe trend evaluation Respondent to a variable. For do analysis this , first of all We need determine scale evaluation influence a variable against Impact and frequency to performance time , as depicted following :

a. Impact

1.	Very small	:	No influence time
2.	Small	:	Resulting in a schedule delay of <5%
3.	Medium	:	Causes a schedule delay of 5% - 10%
4.	large	:	Resulting in a schedule delay of 11% - 15%
5.	Very large	:	Causes a schedule delay of 15 - 20%

b. Frequency Delay

1.	Very rare	:	Rare occurs (1 – 6 times occurrence), only in conditions certain
2.	Rarely	:	Sometimes occurred (7 – 12 times) , at condition certain

3. Sometimes : Occurs every day condition (13-18 occurrences),
4. Often : Often occurred (18-24 times) , in every condition
5. Very often : Always occurred (25-31 times) , in every condition

Following This results analysis Descriptive in table 4.10

Table 1 Descriptive Analysis Frequency & Impact Risk

NO	RISK IDENTIFICATION	FREQUENCY OF OCCURANCE					IMPACT OF THE EVENT					MODE		MEAN	
		1	2	3	4	5	1	2	3	4	5	F	I	F	I
X1	Ascension material price	14	3	5	1	0	12	7	4	0	0	1	1	1,345	1.31
X2	Scarcity material	10	8	1	2	2	9	8	6	0	0	1	1	1,621	1,483
X3	Delay material delivery	3	7	4	3	6	7	5	6	5	0	2	1	2,448	1,897
X4	Poor quality material Good	6	7	7	3	0	8	7	6	2	0	2	2	1,828	1,655
X5	Volume and type of material do not appropriate	6	10	3	4	0	9	9	3	2	0	2	2	1,759	1,517
X8	Theft of materials	11	6	3	2	1	15	5	2	0	1	1	1	1,552	1,241
X9	Equipment No complete	8	6	7	2	0	8	9	5	1	0	1	2	1.69	1,552
X10	Equipment that has been No worthy	7	5	9	1	1	7	8	5	3	0	3	2	1,828	1,724
X11	Delay delivery equipment	3	9	5	4	1	3	12	3	3	2	2	2	2.138	2
X12	Error placement equipment	7	9	5	2	0	8	6	8	1	0	2	1	1,655	1,655
X13	Lost Equipment	11	5	5	1	1	12	6	3	1	1	1	1	1,552	1,448
X14	Availability power underwork	4	9	5	2	3	4	6	10	3	0	2	3	2,069	2
X15	Ability / power skill underwork	3	6	8	4	2	6	6	7	3	1	3	3	2.241	1,931
X16	Come / start Work late , go home more beginning	6	7	5	3	2	7	6	6	3	1	2	1	1.966	1,862
X17	Change work *(Change order)*	2	8	5	4	4	5	11	2	4	1	2	2	2,379	1,862
X18	**Congestion cash flow**	**3**	**1**	**9**	**5**	**5**	**5**	**2**	**6**	**7**	**3**	**3**	**4**	**2.655**	**2.414**
X19	Ignore cost No unexpected	3	6	5	5	4	5	2	9	4	3	2	3	2.414	2.31
X20	Condition difficult location reachable	3	5	6	4	5	5	8	2	3	5	3	2	2.483	2.207
X21	Condition bad location and *site*	5	8	6	3	1	6	8	5	3	1	2	2	1,931	1,862
X22	Earthquake Earth	13	3	4	0	3	13	5	2	2	1	1	1	1,586	1,448
X23	Tsunami	21	0	1	1	0	17	4	1	0	1	1	1	0.966	1.138
X24	Weather Bad	7	6	7	3	0	11	4	6	1	1	1	1	1,793	1,586
X25	Demonstration , rejection location project	8	7	6	2	0	13	4	5	0	1	1	1	1,655	1,414
X26	Riots / riots .	16	4	3	0	0	16	4	2	0	1	1	1	1.138	1.207
X28	Strike Work	13	6	4	0	0	12	8	2	0	1	1	1	1.276	1,345
X29	Lack of experience manager project	3	5	7	4	4	4	5	6	6	2	3	3	2.414	2.276
X30	Lack of communication and coordination between parties involved in project .	3	3	12	3	2	4	2	9	6	2	3	3	2.31	2,379
X31	Lack of supervision to contractors and suppliers	9	6	5	3	0	6	10	3	3	1	1	2	1,655	1,793
X32	Lack of control to timetable implementation work	8	8	3	2	2	5	10	4	4	0	2	2	1,759	1,828
X33	Change policy political government that makes things difficult settlement project	11	4	6	1	1	11	6	3	1	2	1	1	1,586	1,586
X34	Instability monetary	15	6	2	0	0	13	7	1	0	2	1	1	1.138	1,379
X35	Change method construction	4	14	2	2	1	6	9	5	2	1	2	2	1,759	1,793
X36	Incorrect design or No complete	6	8	3	4	2	5	9	4	3	2	2	2	1.966	1.966
X37	Election method under construction appropriate	4	10	5	3	1	7	9	2	4	1	2	2	1,931	1,793
X38	Happen accident Because Error man	12	6	2	3	0	13	5	1	3	1	1	1	1,448	1,483
X39	Happen Accident Due to Failure Equipment	11	8	4	0	0	14	6	1	2	0	1	1	1,345	1.276
X40	Health and Safety Procedures Poor Work (K3)	3	8	8	2	2	9	7	4	1	2	2	1	2.103	1.69

Source : Processed Results Alone , 2025

The highest mean for Frequency and Risk Impact was found in variable X18.

Determination of Risk Level Ranking With Analytical Hierarchy Process (AHP)

AHP analysis is carried out to determine the ranking or mark end from risks that affect to performance time . Started with look for mark risk from frequency and impact , with moreover formerly make hierarchy reject measuring assessment with use scale 1 to 9.

Matrix Paired Frequency

Determining the numbers for the pairwise comparison matrix in this case, there are 5 levels of occurrence frequency, namely very rare, rare, sometimes, often and very often.

Tabel 11 Likert Scale

Intensity	Description
1	Both elements are equally important
3	One element is less important than the other
5	One element is more important than the other
7	One element is clearly more important than the other
9	One element is absolutely more important than the other
2,4,6,8	Values between two adjacent considerations

Looking at the intensity value provisions, the weighting is determined to be 1, 3, 5, 7, 9 in order to have a more absolute value.

Matrix Paired Frequency

Table 2 Matrix Paired Frequency

Information	Very often	often	Sometimes	seldom	Very rarely
Very Often (A)	1	3	5	7	9
Often (B)	0.33	1	3	5	7
Sometimes (C)	0.20	0.33	1	3	5
Rare (D)	0.14	0.20	0.33	1	3
Very Rare (E)	0.11	0.14	0.20	0.33	1
Amount	1.79	4.68	9.53	16.33	25.00

Source : Processed Results Alone , 2025

Table 33 Weight Element For Frequency Risk

Information	Very often	often	Sometimes	seldom	Very rarely	Amount	Priority	Percentage
Very Often (A)	0.560	0.642	0.524	0.429	0.360	2,514	0.503	100%
Often (B)	0.187	0.214	0.315	0.306	0.280	1.301	0.260	51.75%
Sometimes (C)	0.112	0.071	0.105	0.184	0.200	0.672	0.134	26.72%
Rare (D)	0.080	0.043	0.035	0.061	0.120	0.339	0.068	13.48%
Very Rare (E)	0.062	0.031	0.021	0.020	0.040	0.174	0.035	6.93%
Amount	1.00	1.00	1.00	1.00	1.00	5.00	1.00	

Source : Processed Results Alone , 2025

After it is known Weight Element done Testing Consistency with look for CR value < 10%, because The number n = 5 then RI value is 1.12. following This calculation mark CR :

Matrix Paired						Priority		
1.00	3.00	5.00	7.00	9.00		0.503		2.7430974
0.33	1.00	3.00	5.00	7.00		0.260		1.4135234
0.20	0.33	1.00	3.00	5.00	x	0.134	=	0.6990952
0.14	0.20	0.33	1.00	3.00		0.068		0.3409012
0.11	0.14	0.20	0.33	1.00		0.035		0.1773282

$$\lambda max \quad \text{Amount} \quad = \quad 5.3739455$$

$$CI \quad = \quad \frac{\lambda max \quad - \quad n}{n \quad - \quad 1}$$

$$= \quad \frac{5.373946 \quad - \quad 5}{5 \quad - \quad 1}$$

$$= \quad 0.093486$$

Republic of Indonesia $= \quad 1.12$

$$CR \quad = \quad \frac{CI}{Ri}$$

$$= \quad \frac{0.093486}{1.12}$$

$$= \quad 0.08347 \quad = \quad 8\% \quad < \quad 10\% \quad OK$$

Matrix Paired Impact

Table 14 Matrix Paired Impact

Information	Very often	often	Sometimes	seldom	Very rarely
Very Often (A)	1	3	5	7	9
Often (B)	0.33	1	3	5	7
Sometimes (C)	0.20	0.33	1	3	5
Rare (D)	0.14	0.20	0.33	1	3
Very Rare (E)	0.11	0.14	0.20	0.33	1
Amount	1.79	4.68	9.53	16.33	25.00

Source : Processed Results Alone , 2025

Table 15 Weight Element For Frequency Impact

Information	Very often	often	Sometimes	seldom	Very rarely	Amount	Priority	Percentage
Very Often (A)	0.560	0.642	0.524	0.429	0.360	2,514	0.503	100%

Often (B)	0.187	0.214	0.315	0.306	0.280	1.301	0.260	51.75%
Sometimes (C)	0.112	0.071	0.105	0.184	0.200	0.672	0.134	26.72%
Rare (D)	0.080	0.043	0.035	0.061	0.120	0.339	0.068	13.48%
Very Rare (E)	0.062	0.031	0.021	0.020	0.040	0.174	0.035	6.93%
Amount	1.00	1.00	1.00	1.00	1.00	5.00	1.00	

Source : Processed Results Alone , 2025

After it is known Weight Element done Testing Consistency with look for CR value < 10%, because The number n = 5 then RI value is 1.12. following This calculation mark CR :

Matrix Paired						Priority		
1.00	3.00	5.00	7.00	9.00		0.503		2.7430974
0.33	1.00	3.00	5.00	7.00		0.260		1.4135234
0.20	0.33	1.00	3.00	5.00	x	0.134	=	0.6990952
0.14	0.20	0.33	1.00	3.00		0.068		0.3409012
0.11	0.14	0.20	0.33	1.00		0.035		0.1773282

λmax   Amount   =   5.3739455

$$CI = \frac{\lambda max - n}{n - 1}$$

$$= \frac{5.373946 - 5}{5 - 1}$$

= 0.093486

Republic of Indonesia   =   1.12

$$CR = \frac{CI}{Ri}$$

$$= \frac{0.093486}{1.12}$$

= 0.08347 = 8% < 10% OK

Local Values Frequency and Impact

Based on calculation Matrix Paired previously , then obtained its weight is as following :

Table 16 Weight element For frequency delay

Delay Level	Very often	often	Sometimes	Seldom	Very rarely
Weight	1.00	0.52	0.27	0.13	0.07

Source : Processed Results Alone , 2025

Table 4 Weight element For Impact delay

Delay Level	Very high	Tall	Currently	Low	Very Low
Weight	1.00	0.52	0.27	0.13	0.07

Source : Processed Results Alone , 2025

Based on matrix in pairs , then calculation local delay can done , with enter weight each element in accordance with mark calculation weight element above . Calculation of value Local Frequency and Impact can be seen in the following table:

Table 5Local Values to frequency Risk

NO	RISK IDENTIFICATION	FREQUENCY & IMPACT OF EVENTS	

		F	I	F	I	F	I	F	I	F	I	LOCAL VALUES	
		1		2		3		4		5		F	I
		0.07		0.13		0.27		0.52		1			
X1	Ascension material price	14	12	3	7	5	4	1	0	0	0	3.227	2,843
X2	Scarcity material	10	9	8	8	1	6	2	0	2	0	5,073	3.305
X3	Delay material delivery	3	7	7	5	4	6	3	5	6	0	9,773	5.35
X4	Poor quality material Good	6	8	7	7	7	6	3	2	0	0	4,782	4.136
X5	Volume and type of material do not appropriate	6	9	10	9	3	3	4	2	0	0	4.635	3,673
X8	Theft of materials	11	15	6	5	3	2	2	0	1	1	4.407	3.247
X9	Equipment No complete	8	8	6	9	7	5	2	1	0	0	4.268	3.621
X10	Equipment that has been No worthy	7	7	5	8	9	5	1	3	1	0	5,081	4.452
X11	Delay delivery equipment	3	3	9	12	5	3	4	3	2	2	6,827	6.18
X12	Error placement equipment	7	8	9	6	5	8	2	1	0	0	4,069	4.018
X13	Lost Equipment	11	12	5	6	5	3	1	1	1	1	4.289	3.959
X14	Availability power underwork	4	4	9	6	5	10	2	3	3	0	6,861	5.31
X15	Ability / power skill underwork	3	6	6	6	8	7	4	3	2	1	7,224	5,647
X16	Come / start Work late , go home more beginning	6	7	7	6	5	6	3	3	2	1	6.248	5,449
X17	Change work *(Change order)*	2	5	8	11	5	2	4	4	4	1	8,623	5.434
X18	Congestion cash flow	3	5	1	2	9	6	5	7	5	3	10,335	8,842
X19	Ignore cost No unexpected	3	5	6	2	5	9	5	4	4	3	8.94	8,091
X20	Condition difficult location reachable	3	5	5	8	6	2	4	3	5	5	9,555	8,512
X21	Condition bad location and *site*	5	6	8	8	6	5	3	3	1	1	5.58	5.382
X22	Earthquake Earth	13	13	3	5	4	2	0	2	3	1	5.373	4.144
X23	Tsunami	21	17	0	4	1	1	1	0	0	1	2.239	2,984
X24	Weather Bad	7	11	6	4	7	6	3	1	0	1	4.717	4.422
X25	Demonstration , rejection location project	8	13	7	4	6	5	2	0	0	1	4.136	3.775
X26	Riots / riots .	16	16	4	4	3	2	0	0	0	1	2,449	3.182
X28	Strike Work	13	12	6	8	4	2	0	0	0	1	2,778	3.444
X29	Lack of experience manager project	3	4	5	5	7	6	4	6	4	2	8,822	7,659
X30	Lack of communication and coordination between parties involved in project .	3	4	3	2	12	9	3	6	2	2	7,371	8,057
X31	Lack of supervision to contractors and suppliers	9	6	6	10	5	3	3	3	0	1	4.321	5.118
X32	Lack of control to timetable implementation work	8	5	8	10	3	4	2	4	2	0	5,469	4.833
X33	Change policy political government that makes things difficult settlement project	11	11	4	6	6	3	1	1	1	2	4.422	4.89
X34	Instability monetary	15	13	6	7	2	1	0	0	0	2	2.382	4.111
X35	Change method construction	4	6	14	9	2	5	2	2	1	1	4,734	5
X36	Incorrect design or No complete	6	5	8	9	3	4	4	3	2	2	6.366	6.181
X37	Election method under construction appropriate	4	7	10	9	5	2	3	4	1	1	5,514	5.302
X38	Happen accident Because Error man	12	13	6	5	2	1	3	3	0	1	3,727	4.394
X39	Happen Accident Due to Failure Equipment	11	14	8	6	4	1	0	2	0	0	2,909	3,081
X40	Health and Safety Procedures Poor Work (K3)	3	9	8	7	8	4	2	1	2	2	6,459	5.153

Source : Processed Results Alone , 2025

Final Risk Value

After getting each local value variable Good impact and frequency events . Next , Analysis of the value end factor level risk , with multiply impact and frequency risk . After getting mark fact risk , then classified risk factor value the based on matrix category risk .

Figure 2 Matrix Category Risk
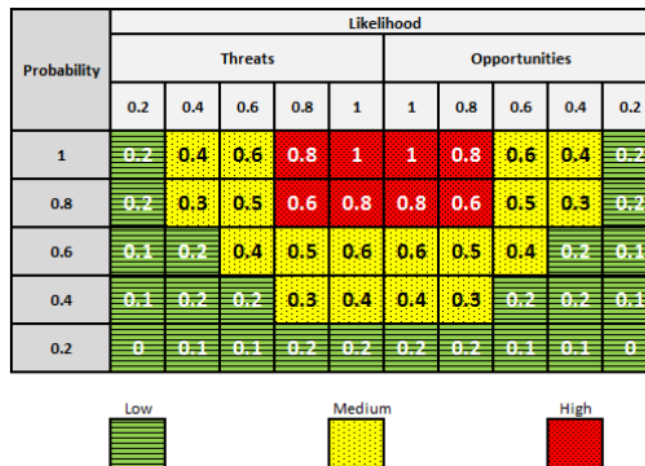
Source : PMBOK, 2017

Based on matrix the variable risk can be determined level the risk *High* (high), *Medium* (medium), *Low* (low).

Table 19 Final Value Risk Against Time Performance

NO	RISK IDENTIFICATION	LOCAL VALUES		FINAL VALUE OF RISK FACTORS		INFORMATION
		Frequency	Impact	%	RESULTS	
X1	Ascension material price	3.23	2.84	9.18	0.09	LOW
X2	Scarcity material	5.07	3.30	16.77	0.17	LOW
X3	Delay material delivery	9.77	5.35	52.28	0.52	MEDIUM
X4	Poor quality material Good	4.78	4.14	19.78	0.20	LOW
X5	Volume and type of material do not appropriate	4.64	3.67	17.03	0.17	LOW
X8	Theft of materials	4.41	3.25	14.31	0.14	LOW
X9	Equipment No complete	4.27	3.62	15.45	0.15	LOW
X10	Equipment that has been No worthy	5.08	4.45	22.62	0.23	LOW
X11	Delay delivery equipment	6.83	6.18	42.19	0.42	MEDIUM
X12	Error placement equipment	4.07	4.02	16.35	0.16	LOW
X13	Lost Equipment	4.29	3.96	16.98	0.17	LOW
X14	Availability power underwork	6.86	5.31	36.44	0.36	MEDIUM
X15	Ability / power skill underwork	7.22	5.65	40.80	0.41	MEDIUM
X16	Come / start Work late , go home more beginning	6.25	5.45	34.05	0.34	MEDIUM
X17	Change work *(Change order)*	8.62	5.43	46.85	0.47	MEDIUM
X18	Congestion cash flow	10.34	8.84	91.38	0.91	HIGH
X19	Ignore cost No unexpected	8.94	8.09	72.33	0.72	HIGH
X20	Condition difficult location reachable	9.56	8.51	81.33	0.81	HIGH
X21	Condition bad location and *site*	5.58	5.38	30.04	0.30	MEDIUM
X22	Earthquake Earth	5.37	4.14	22.27	0.22	LOW
X23	Tsunami	2.24	2.98	6.68	0.07	LOW
X24	Weather Bad	4.72	4.42	20.85	0.21	LOW
X25	Demonstration , rejection location project	4.14	3.78	15.61	0.16	LOW
X26	Riots / riots .	2.45	3.18	7.79	0.08	LOW
X28	Strike Work	2.78	3.44	9.57	0.10	LOW
X29	Lack of experience manager project	8.82	7.66	67.57	0.68	HIGH
X30	Lack of communication and coordination between parties involved in project .	7.37	8.06	59.39	0.59	MEDIUM
X31	Lack of supervision to contractors and suppliers	4.32	5.12	22.11	0.22	LOW
X32	Lack of control to timetable implementation work	5.47	4.83	26.43	0.26	LOW
X33	Change policy political government that makes things difficult settlement project	4.42	4.89	21.62	0.22	LOW
X34	Instability monetary	2.38	4.11	9.79	0.10	LOW
X35	Change method construction	4.73	5.00	23.67	0.24	LOW
X36	Incorrect design or No complete	6.37	6.18	39.34	0.39	MEDIUM
X37	Election method under construction appropriate	5.51	5.30	29.24	0.29	LOW

X38	Happen accident Because Error man	3.73	4.39	16.38	0.16	LOW
X39	Happen Accident Due to Failure Equipment	2.91	3.08	8.96	0.09	LOW
X40	Health and Safety Procedures Poor Work (K3)	6.46	5.15	33.28	0.33	MEDIUM

Source : Processed Results Alone , 2025

Based on weight results from calculations that have been done , the following is Factor delays that are selected and have level risk tall is :

    1. Traffic jam cash flow
    2. Ignore cost No unexpected
    3. Conditions location difficult reachable
    4. Lack of experience manager project

Questionnaire Stage Third (Validation-Response Factor Delay)
    After getting it factors delays and sequences priority , then next is do validation on results The survey was conducted with submit agreement to qualified expert condition For know opinion they about results obtained . Expert got with background behind consultant planner and consultant supervisor with minimum 10 years experience .
    Questions asked to the experts in the form of How opinion they to factors delay said , which was obtained with form answer as following :
    1. Strongly agree
    2. No agree
    From the results validation got 5 opinions state agree . Can concluded that all Respondent agree with results study This .

Mitigation High Risk
    Risk tall to performance time has obtained need management risk so that risk No impact on work project . Obtained response and management risk from results interview from experts conducted on a questionnaire stage to three . Here This is management risks that can occur done For minimize impact risk dominant :

Table 20 Responses Risk and Mitigation Risk

No	Variables	Case			
			Preventive Actions	Corrective Action	Distribution Risk
X18	Congestion cash flow	Purchase of Materials no in accordance timetable work and schedule finance	Contractor must prepare finance in accordance need timetable work that is structured .	Contractor must submit billing monthly appropriate time and documents billing must complete and appropriate condition field	Contractor can submit credit construction to the bank.
X19	Ignore unexpected costs	Damaged equipment No quick fixed	Contractor need provide tool backup in each work item	Contractor can look for alternative method Work while wait repair tool .	Contractor : manage work that requires tool certain vulnerable damage with use subcontractor
X20	Difficult to reach location conditions	Tools needed in bore work no in accordance need field Because condition the bridge that was crossed during mobilization damaged	Moment conduct an initial survey contractor must inventory potential obstacles that will be happen and make plans his work	Contractor need add similar tools so that production work concrete can more Good .	Contractor : coordinate with owner bored pile tool for increase working hours into 2 shifts
X29	Lack of project manager experience	Method work carried out wrong	Owner can verify experience manager project based on cv and certificate Work	Owner can reprimand contractor if contractor carry out work No according to standard	Contractor to weave communication Good consultant For look for method good job .

Source : Processed Results Alone , 2025

V. CONCLUSION

Research result shows the risk dominant reason delay The implementation of the construction of Sumur Taman Jaya Road is as following ;
1. Risk tall to performance time \ in work development road province is :
    a. X 18 Traffic jam cash flow

    b. X 19 Ignore cost No unexpected

    c. X 20 Condition difficult location reachable

    d. X 29 Lack of experience manager project

2. Mitigation from risk height that can done is :

    a. X 18 Traffic jam cash flow : Contractor make planning finance complete cash flow with timetable submission and estimate disbursement payment

    b. X 19 Ignore cost No suspect : Contractor must provide budget cost No unexpected in plan budget implementation

    c. X 20 Condition difficult location reached : Contractor can repair access road or bridge that is while for mobilization tool can done

    d. X 29 Lack of experience manager project : Contractor must choose manager experienced and appropriate projects type work carried out

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