Identification Analysis of the Influence of Construction Project Failures in the Lombok Tourism area

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ABSTRACT: Construction failure is the result of inconsistencies, errors, or defects in the building process that can result in structural collapse. Construction failures in "Lombok" are a variety of construction failure problems, but researchers only took 22 locations of project failures that have occurred on Lombok Island. This construction failure occurred in several districts and cities on the island of Lombok, specifically in East Lombok Regency, Central Lombok Regency, North Lombok Regency, West Lombok Regency and Mataram City. The research method used is descriptive research with a quantitative approach where data collection techniques are through questionnaires and interviews with contractors, consultants and project owners. After the data was collected, validity and reliability testing was carried out using Excel and SPSS software. Where the test aims to find out the most dominant causal and influencing factors from the questionnaire answers that have been distributed. The results of this research found that the factors causing project failure were corruption and bribery (33.70%), inappropriate planning (33.33%), and errors during the construction phase (32.90%) on the part of the contractor. From the consultant side, design errors were related to construction methods (51.18%) and poor design (48.46%). From the project owner's side, there was neglect of the planning process (50.18%) and financial problems (49.82%). The most influential factors were design errors related to construction methods from consultants (51.18%), neglect of the planning process from project owners (50.18%) and corruption and bribery from contractors (33.70%). It is hoped that the results of this research can become a basis for improving and mitigating the risk of failure in construction projects in the future.

Keywords: failure, performance, construction

I. INTRODUCTION

Lombok is a prominent tourism destination because as one of the two largest islands in West Nusa Tenggara Province, it has various advantages. The friendly Sasak people, the charm of the beaches, the diversity of coral reefs and the abundant biodiversity are the main attractions.

Buildings are an important element in the human environment. Building infrastructure development is the key to a country's progress in various sectors. However, failures in infrastructure planning, design and maintenance can hinder the nation's growth and progress. Damage to buildings after construction can cause major financial losses and even endanger public safety and economic stability(Douglas et al, 2013).

Construction failure is the result of inconsistencies, errors, or damage in the construction process which can result in structural collapse (Wiyana, 2012). The causes can come from nature such as hurricanes, tsunamis, earthquakes, or due to human error (Adam et al., 2018). In Indonesia, building failure incidents are not uncommon. According to a report by the DJBK Construction Sustainability Directorate, Ministry of PUPR (2020), there were 9 incidents of building failure between 2017 and 2020. Technical construction factors such as equipment technology, building materials, work methods, operational standards and labor were the main causes (Amal , 2023).

Construction failures in "Lombok" are various construction failure problems, but researchers only took 22 locations of project failures that have occurred on Lombok Island. From these 22 locations, researchers have conducted surveys. This construction failure occurred in several districts and cities on the island of Lombok, specifically in East Lombok Regency, Central Lombok Regency, North Lombok Regency, West Lombok Regency and Mataram City. From the survey results, researchers found several factors that caused project failure from these 22 points. The results of observations that show failure include; Project budget corruption, minimum project performance, project tender failure, project failure within the specified time, failure to complete a project, crawling due to many irregularities, budget manipulation in development.

As a result, legal problems often arise in construction projects due to violations of contracts, such as violations of project volume, quality or time. This legal problem can result in civil or criminal legal sanctions. To avoid this, all parties involved in managing construction projects need to understand the relevant legal aspects. This is also confirmed by Law No. 18/1999 concerning construction services which states that if a failure occurs in the building/construction, all parties involved must be responsible and may be subject to compensation, including the owner, planner, implementer and consultant.

Researchers chose to examine construction failures in the "Building Construction" category, with data obtained from SIRUP LKPP. SIRUP LKPP is an application used as a tool to announce RUP (General Procurement Plan) and is a web-based information system from the Government Goods/Services Procurement Policy Institute. Researchers collected data from SIRUP LKPP to analyze the number of project packages and incidents of construction failure in Lombok. Data collection was carried out by accessing information regarding "project packages" and "construction failures" from 2018 to 2022 in various project areas, Buildings and Roads.

The study carried out in this research is based on data from questionnaires and interviews with related parties (Stakeholders) in the implementation of construction projects such as planning consultants, supervisory consultants and contractors as service providers and the government as service users or to mitigate or avoid potential problems. -problems both at the planning stage, procurement stage, and construction stage up to the project maintenance stage in the Lombok area.

Formulation of the problem

1. What are the factors causing the failure of the Lombok Tourism Area construction project?
2. What is the main factor that is most influential in causing the failure of construction projects in the Lombok Tourism Area?

Research purposes

1. To find out the factors that cause construction project failureLombok Tourism Area building.
2. To find out the factors that most influence the risk of failure of building construction projects in the Lombok Tourism area.

Scope of problem

1. This research will involve stakeholders in Lombok, especially those who have experience in development in the region or are involved in development projects in the Lombok tourism sector.
2. Data will be collected through questionnaires distributed to related parties and people who are experienced in the construction industry in Lombok, especially in the tourism sector. Apart from that, information will also be obtained from literature contained in relevant journals.
3. The focus of the research will be on building construction projects in the Lombok region.

II. RESEARCH METHODS

The location of this research was carried out in several areas on Lombok Island. There are several areas on Lombok Island that have experienced construction project failures, to be precise in several districts such as North Lombok Regency, Central Lombok, East Lombok, West Lombok and Mataram City.

Types of research

This type of research uses quantitative methods with data collection techniques through questionnaires. The focus of the research is on the causal factors and factors that most influence the risk of failure of building construction projects in the Lombok tourism area.

Population and Sample

The population in this research is all individuals or units relevant to the research topic, including various groups involved in causing the failure of construction projects in the Lombok Tourism Area, such as contractors, consultants and owners (project owners).

Meanwhile, the sample is part of the population selected to be the research object. In this study, researchers took 35 respondents from the total population consisting of:

- Contractors 110 at 20% = 21 Respondents
- Consultant 40 at 20% = 8 Respondents
- Owner 25 at 20 % = 6 Respondents

The total population is 175, and the number of respondents taken is 20% of the total population, namely 35 respondents. The sampling method used is the proportional method, where the number of respondents is taken from each group in accordance with the proportion of its members in the population.

Method of collecting data

The information or data needed to carry out this research was collected using the following method:

1. Secondary Data
   Secondary data is data that is authoritative, meaning that it has authority. Secondary data can also be called data that already exists in a person or organization.
2. Primary data
   Primary data is data that is processed first and then obtained by researchers as additional information such as questionnaires, or observation results.

The primary data used by the author in this research is filling out a questionnaire. A questionnaire is a data collection technique through forms containing questions asked in writing to a person or group of people to obtain answers or responses and information needed by the researcher (Mardalis: 2008:66). The questionnaire used in this case is a closed questionnaire, namely a questionnaire where the answers have been provided, so that the respondent just has to choose and answer directly.

Table: Stage I answer questionnaire format

NO	CONSTRUCTION FAILURE RISK VARIABLES	INFLUENCE ON CONSTRUCTION FAILURE				
		1	2	3	4	5
1	Poor contractor management/poor contractor performance					
2	Insufficient contractor experience					
3	Improper contractor planning					

Information:

a. (1) has no effect
b. (2) has little effect
c. (3) moderate effect
d. (4) has a big influence
e. (5) very influential

Data Analysis Methods

To determine the causal factors, influences and risk levels of construction project failure. Data analysis was carried out by looking for the average value (mean) of each factor in the questionnaire list.

Researchers use Excel software to test the validity and reliability of research instruments that researchers use, such as questionnaires. Validity testing can be carried out using correlation analysis between relevant variables. Reliability can be tested using statistical methods such as Cronbach's Alpha to measure the internal consistency of a measurement scale.

a. Validity test

   Validity test is a test that functions to see whether a measuring instrument is valid or invalid. The measuring instruments referred to here are the questions in the questionnaire. A questionnaire is said to be valid if the questions in the questionnaire can reveal something that is measured by the questionnaire.

b. Reliability Test

   According to Notoatmodjo (2005) in Widi R (2011), reliability is an index that shows the extent to which a measuring instrument can be trusted or relied upon. So the reliability test can be used to determine the consistency of the measuring instrument, whether the measuring instrument remains consistent if the measurement is repeated. A measuring instrument is said to be reliable if it produces the same results even if measurements are taken many times.

   Usually before a data reliability test is carried out, a data validity test is carried out. This is because the data to be measured must be valid, and then proceed with data reliability testing. However, if the data measured is invalid, there is no need to carry out a data reliability test.

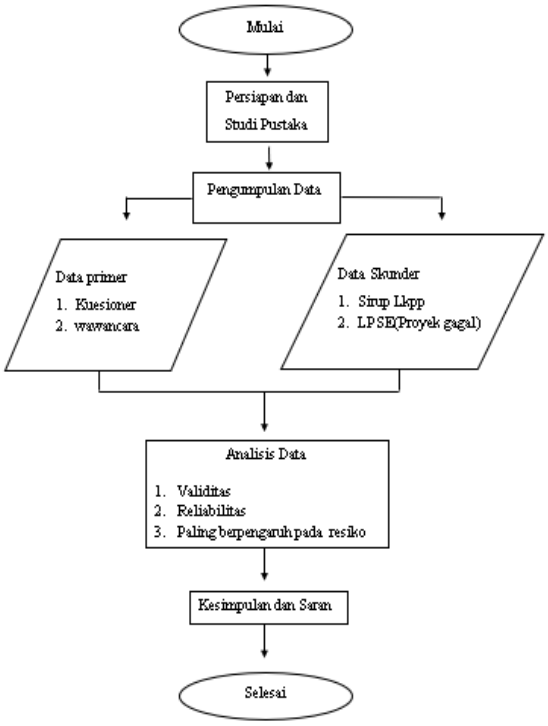
   There are several methods that can be used to test the reliability of data, although there are several reliability test methods, usually for research data and questionnaires the Cronbach's Alpha method is used. In this research, we will explain how to carry out a reliability test using the Cronbach's Alpha method. According to Suharsimi Arikunto (2010), Cronbach's Alpha is used to find the reliability of instruments whose score is not 1 or 0. In the Crobach's Alpha method the following formula is used.

$$r_{11} = \left[\frac{k}{(k-1)}\right]\left[1 - \frac{\Sigma\sigma_b^2}{\sigma_t^2}\right]$$

Keterangan :
r_{11} = koefisien reliabilitas instrument (total tes)
k = jumlah butir pertanyaan yang sah
$\Sigma\sigma_b^2$ = jumlah varian butir
σ_t^2 = varian skor total

Calculations using the Cronbach's Alpha formula are accepted if the calculated r > r table is 5%.

Research Flow Chart



III. RESULTS AND DISCUSSION

In this research, data was obtained through distributing questionnaires to sources to obtain secondary data in accordance with the research objectives. Questionnaires were distributed to 35 respondents, which is 20% of the total population of 175 people. Sampling was carried out proportionally to each population group, namely (contractors 110 at 20% = 21 respondents, Consultants 40 at 20% = 8 respondents and Owners 25 at 20% = 6 respondents) which is a total of 35 respondents in a population of 20%.

The resource persons in this research are those who are directly involved in the implementation of the Government's construction goods/services procurement process and the community who have experience in carrying out construction work in the "Lombok Tourism Area, West Nusa Tenggara. The description of the profile of the resource person (Respondent) according to the length of service is known:

Source Data

1. Work experience

Of the 35 respondents who had played a direct role in the development of Lombok tourist buildings, research was conducted and it was found that the respondents in this study on average had worked for <10 years and >1 year.

Image: Work Experience

2. Level of education

From the questionnaires that have been answered and collected, it can be seen that of the 35 respondents who had a direct role in the construction of Lombok tourist buildings, most of them had a bachelor's degree, 77.14%. As many as 11.43% of respondents had a master's degree education background, and the remaining 11.43% of respondents had a vocational/high school education background.

Table: Education Level

EDUCATION	AMOUNT	PERCENTAGE
SMK/SMA	4	11.43
SI	27	77.14
S2	4	11.43

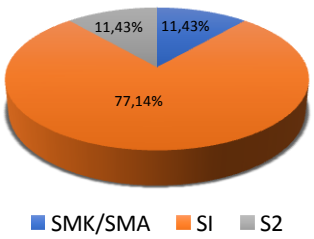


Image: Education Level Diagram

3. Job (Position on project)

From the questionnaires that have been answered and collected, it can be seen that of the 35 respondents who have played a direct role in the construction of Lombok tourist buildings, most of the respondents worked as contractors, 40%. Consultants 28.57%, and

Owners 14.29%.

Table: Occupation (Position)

POSITION	AMOUNT	PERCENTAGE
CONTRACTOR	16	40
CONSULTANT	12	28.57
OWNER	7	14.29

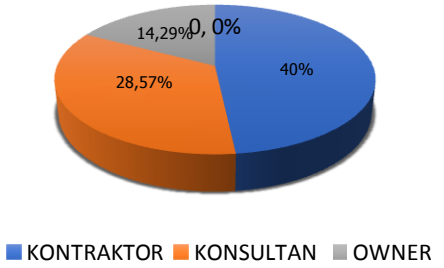


Image: Job Diagram

Validity Test Results

To test whether the variables used are valid or not, the Pearson validity test compares the calculated r value with the r table. if the calculated r value is more than r table then it is declared 'valid' and if the calculated r value is less than r table then it is declared 'invalid'. Where N = 35 at 5% significance in the distribution of the significance table r values, the r table value obtained is 0.334. The determination of the table r value can be seen in the table

Table: Validity Test for Causes of Construction Project Failure

VALIDITY TEST RESULTS			
NO	RXY	RTABLE	STATUS
1	0.69214	0.344	VALID
2	0.52109	0.344	VALID
3	0.48419	0.344	VALID
4	0.74106	0.344	VALID
5	0.59971	0.344	VALID
6	0.74937	0.344	VALID
7	0.71723	0.344	VALID
8	0.73102	0.344	VALID
9	0.47993	0.344	VALID
10	0.42255	0.344	VALID
11	0.74127	0.344	VALID
12	0.56493	0.344	VALID
13	0.85298	0.344	VALID
14	0.46527	0.344	VALID
15	0.78589	0.344	VALID
16	0.64571	0.344	VALID
17	0.66522	0.344	VALID
18	0.75808	0.344	VALID
19	0.75885	0.344	VALID
20	0.8687	0.344	VALID
21	0.78753	0.344	VALID
22	0.75699	0.344	VALID
23	0.80147	0.344	VALID
24	0.83547	0.344	VALID
25	0.69234	0.344	VALID
26	0.88912	0.344	VALID
27	0.39548	0.344	VALID
28	0.80625	0.344	VALID
29	0.83269	0.344	VALID
30	0.88303	0.344	VALID
31	0.83268	0.344	VALID
32	0.87414	0.344	VALID
33	0.84014	0.344	VALID
34	0.90544	0.344	VALID
35	0.69269	0.344	VALID

Reliability Test Results

In testing the reliability of the Cronbach's Alpha value of the causes of project failure, we obtained a result of 0.99 with a reliability coefficient category of 0.80 ≤ r11 ≤ 1.00 = (0.99), so the research instrument used was declared feasible, so that the data obtained could be used. in factor analysis. (Reliability Test attached in attachment 3).

Table: Reliability Test Causes of construction failure

CAUSAL REALIBILITY TEST	
Number of Item Variants	38,837
Total Variance	4,832
r11	0.991
Reliability Value	0.99

Table: Reliability Test Statistics for construction failure

RELIABILITY STATISTICS		
Variable	***Cronbach's Alpha***	**N of Items**

Causes of Project Failure	0.991	35

The results of the Cronbach's Alpha method reliability test calculation (r count) can be seen in the Cronbach's Alpha column, namely 0.991 with N of Items indicating that the number of items or the number of questions that I input into the variable view is 35. So it can be said that the Cronbach's Alpha results for 35 data from items or 35 questions, namely 0.991.

Then, to find out whether the data can be trusted or not, if the calculated r calculation > r table 5%, where the calculated r is seen from the calculation results table obtained from SPSS, while the r table 5% is seen in the table that has been determined, in Table below.

Table: Distribution of r value table Significance 5% and 1%

The Levels Of Significance			The Levels Of Significance		
N	**5%**	**1%**	**N**	**5%**	**1%**
3	0.997	0.999	**38**	0.320	0.413
4	0.950	0.990	**39**	0.316	0.408
5	0.878	0.959	**40**	0.312	0.403
6	0.811	0.917	**41**	0.308	0.398
7	0.754	0.874	**42**	0.304	0.393
8	0.707	0.834	**43**	0.301	0.389
9	0.666	0.798	**44**	0.297	0.384
10	0.632	0.765	**45**	0.294	0.380
11	0.602	0.735	**46**	0.291	0.376
12	0.576	0.708	**47**	0.288	0.372
13	0.553	0.684	**48**	0.284	0.368
14	0.532	0.661	**49**	0.281	0.364
15	0.514	0.641	**50**	0.279	0.361
16	0.497	0.623	**55**	0.266	0.345
17	0.482	0.606	**60**	0.254	0.330
18	0.468	0.590	**65**	0.244	0.317
19	0.456	0.575	**70**	0.235	0.306
20	0.444	0.561	**75**	0.227	0.296
21	0.433	0.549	**80**	0.220	0.286
22	0.432	0.537	**85**	0.213	0.278
23	0.413	0.526	**90**	0.207	0.267
24	0.404	0.515	**95**	0.202	0.263
25	0.396	0.505	**100**	0.195	0.256
26	0.388	0.496	**125**	0.176	0.230
27	0.381	0.487	**150**	0.159	0.210
28	0.374	0.478	**175**	0.148	0.194
29	0.367	0.470	**200**	0.138	0.181
30	0.361	0.463	**300**	0.113	0.148
31	0.355	0.456	**400**	0.098	0.128
32	0.349	0.449	**500**	0.088	0.115
33	0.344	0.442	**600**	0.080	0.105
34	0.339	0.436	**700**	0.074	0.097
35	0.334	0.430	**800**	0.070	0.091
36	0.329	0.424	**900**	0.065	0.086
37	0.325	0.418	**1000**	0.062	0.081

After that, look at the N value according to the number of respondents, here the researcher used 35 respondents. Where the value of N is 40. Looking at the r table 5%, it is known that the r table for this data is 0.334. Then, it can be concluded that r calculated > r table 5%, namely 0.991 > 0.334, so the data is reliable or trustworthy and consistent.

Analysis of Factors Causing Construction Project Failure

To find out the most dominant causal factors, using Descriptive Statistics method analysis, the analysis results obtained are shown in the table below.

Table: Descriptive Statistical Analysis for Identification of Causal Factors

FROM THE CONTRACTOR		
NUMBER	**AVERAGE**	**%**
X1	4.26	85.14
X2	4.23	84.57
X3	4.40	88.00
X4	3.91	78.29
X5	3.74	74.86
X6	4.11	82.29
X7	4.00	80.00
X8	4.09	81.71
X9	4.46	89.14
X10	4.34	86.86
X11	4.06	81.14
X12	4.17	83.43
X13	4.09	81.71

X14	3.74	74.86
X15	3.77	75.43
X16	4.09	81.71
X17	4.06	81.14
X18	4.11	82.29
X19	3.31	66.29
X20	3.29	65.71
X21	3.57	71.43
X22	3.49	69.71
FROM CONSULTANTS		
NUMBER	**AVERAGE**	**%**
X23	3.97	79.43
X24	3.77	75.43
X25	4.06	81.14
X26	3.66	73.14
X27	4.31	86.29
FROM THE OWNER		
NUMBER	**AVERAGE**	**%**
X28	3.97	79.43
X29	3.71	74.29
X30	3.97	79.43
X31	3.74	74.86
X32	3.91	78.29
X33	3.97	79.43
X34	3.80	76.00
X35	3.91	78.29

Influence Factors on Construction Failure

From the test resultsThe author's descriptive statistical analysis method took 15 factors from the variables which are the causal factors and the results which can be shown in the table below.

Table: Factors Causing Construction Failure

CONTRACTOR		
NO	CAUSAL VARIABLES	PERCENTAGE
X1	Poor contractor management/poor contractor performance	85.14
X2	Insufficient contractor experience	84.57
X3	Improper contractor planning	88.00
X9	Corruption and bribery in Construction projects	89.14
X10	Errors during the construction phase	86.86
CONSULTANT		
NO	CAUSAL VARIABLES	PERCENTAGE
X23	Lack of an effective business plan	79.43
X24	Poor design capacity and frequent design changes	75.43
X25	Poor design and management of dimensional variability	81.14
X26	Lack of supervision	73.14
X27	Design errors, mainly related to construction methods and use of various components	86.29
OWNER		
NO	CAUSAL VARIABLES	PERCENTAGE
X28	Insufficient client finances and payments for work completed	80.00
X30	Ignoring the importance of the project planning process and project planning	79.43
X32	Late payment	78.29
X33	High economic volatility and inflation	78.86
X35	Factors (deteriorating political, security and economic situation	78.29

Test Results Have the Most Influence on Construction Failure

After determining the percentage of results from the causal factor variables, the researcher then took 7 of the variables that cause construction failure, including 3 from contractor variables, 2 from consultants and 2 from owners with the highest value to find the most dominant factors causing construction failure. And the results are in the table below.

Table: Analysis of the most dominant causes of project failure

CONTRACTOR		
NO	**CAUSAL VARIABLES**	**PERCENTAGE**
X9	Corruption and bribery in Construction projects	33.70

X3	Improper contractor planning	33.33
X10	Errors during the construction phase	32.90
	TOTAL	**100**
CONSULTANT		
NO	**CAUSAL VARIABLES**	**PERCENTAGE**
X27	Design errors, mainly related to construction methods and use of various components	51.18
X25	Poor design and management of dimensional variability	48.46
	TOTAL	**100**
OWNER		
NO	**CAUSAL VARIABLES**	**PERCENTAGE**
X30	Ignoring the importance of the project planning process and project planning	50.18
X28	Insufficient client finances and payments for work completed	49.82
	TOTAL	**100**

And as for the explanation of the results of the 7 most dominant factors that cause construction failure.

a. Contractor
   - Corruption and bribery in construction projects obtained a percentage of 33.70% of the total assessment scores from respondents on contractors, the mean value was , standard deviation. Because contractor negligence in carrying out work can affect the contractor's work productivity. Of the 35 respondents to the contractor questionnaire (22 questions), 23 respondents said it was very influential, 6 respondents said it had a big influence, 5 respondents said it had a moderate influence and 1 respondent said it had a small influence.
   - Inappropriate contractor planning, the percentage obtained was 33.33%, of the total assessment score from respondents on contractors, the mean value was , standard deviation. Because contractor negligence in carrying out work can affect the contractor's work productivity. Of the 35 respondents to the contractor questionnaire (22 questions) 20 respondents stated that it was very influential. A total of 11 respondents said it had a very big influence, 2 respondents said it had a moderate influence and 2 respondents said it had a small influence.
   - Errors during the construction phaseThe percentage obtained was 32.90%" of the total assessment scores from respondents to contractors, the mean value was , standard deviation. Because contractor negligence in carrying out work can affect the contractor's work productivity. Of the 35 respondents to the contractor questionnaire (22 questions) 22 respondents stated that it was very influential. A total of 5 respondents said it had a very big influence, 6 respondents said it had a moderate influence and 2 respondents said it had a small influence.

b. Consultant
   - Design errors, mainly related to construction methods and use of various componentswith a percentage of 51.18% of the total assessment scores from respondents, the mean value is , standard deviation. Of the 35 respondents for consultants (5 questions) 17 respondents stated that they had a very big influence. A total of 14 respondents said it had a very big influence, 3 respondents said it had a moderate influence and 1 respondent said it had no influence.
   - Poor design and management of dimensional variabilitywith a percentage of 48.46% of the total assessment scores from respondents, the mean value is , standard deviation. Of the 35 respondents for consultants (5 questions) 17 respondents stated that they had a very big influence. A total of 10 respondents said it had a very big influence, 3 respondents said it had a moderate influence and 5 respondents said it had no influence.

c. Owner
   - Ignoring the importance of the project planning process and project planning, the percentage obtained is 50.18% with a mean value of standard deviation. From 35 respondents for Owner (8 questions). As 12 respondents said it was very influential, 12 respondents said it had a very big influence,

7 respondents said it had a moderate influence, and 4 respondents said it had no influence.

- Insufficient client finances and payments for work completedThe percentage obtained was 49.82% with a mean value of the standard deviation. From 35 respondents for Owner (8 questions). As 14 respondents said it was very influential, 10 respondents said it had a very big influence, 8 respondents said it had a moderate influence, and 3 respondents said it had no influence.

IV. Conclusions And Recommendations

Conclusion

Based on the results of research on the factors causing failure of construction projects in the Lombok tourist area which were analyzed using Excel and SPSS, it was found that the dominant factors came from three main sources: contractors, consultants and project owners (owners).

1. Factors causing project failure. Of the Contractors, corruption and bribery (33.70%), improper planning (33.33%), and errors during the construction phase (32.90%) were the main factors. On the Consultant side, design errors related to construction methods (51.18%), poor design and management of dimensional variability (48.46%), From the Owner, neglect of the project planning process (50.18%), and financial and payment problems that inadequate (49.82%).
2. The most influential factors that cause project failure are design errors related to construction methods from consultants (51.18%), and neglect of the importance of the project planning process from the project owner (50.18%), corruption and bribery in construction projects from contractors (33.70%).

Suggestion

Based on the research results that have been found, the author provides several suggestions that can be taken into consideration by service users, as well as service providers or stakeholders, namely:

1. Contractor
   - Providing open and transparent access to project information, including budgets, contracts and payments, to reduce misappropriation of funds or corruption.
   - It is best to involve construction consultants with experts such as engineers and architects in project planning.
   - Hold regular meetings during the construction process to identify errors early

2. **Consultant**
   - Carry out careful planning before starting construction including accurate design, schedule and budget analysis.
3. Owner
   - Recognize that planning is a crucial first step in a construction project, and allow sufficient time to begin planning.
   - Make regular payments on incoming payments and ensure clients pay on time according to schedule.

BIBLIOGRAPHY

[1] Ambar Tiara Vallen (2016) "Causes and Ways to Overcome Construction Project Failures from the Planning to Implementation Stages in the Ambon Maluku Region"
[2] Cheung et al. (2004), "project performance can be measured and evaluated using many performance indicators related to various dimensions such as time, cost, quality, customer satisfaction, client change, business performance, health and safety"
[3] Patilang, S. (2009). "What If" Analysis as a Method of Anticipating Delays in Project Duration in the Abadi Yogyakarta Hotel Construction Project (Doctoral dissertation, UAJY).
[4] Leksono, EB, & Ismiyah, E. (2018). Risk management & SWOT analysis approach to anticipate a decline in profits at Ecos Minimart Gresik. Matrix: Journal of Industrial Production Management and Engineering, 18(2), 23-40.
[5] H. Sayfuddin, ST. MT(2022) “Study on Factors Affecting the Successful Implementation of Construction Projects in West Lombok District and Mataram City"
[6] Lombok Post"Meninting Dam Water Overflow, BWS Claims Not Due to Construction Failure"

[7] Hansen, S. (2015). Construction contract management. Gramedia Pustaka Utama.
[8] Pranoto (1997) "Sources of construction failure are often influenced by natural factors and human behavior"
[9] Wiyana, YE (2016). Analysis of Construction and Building Failures from the Perspective of Technical Factors. Wahana Civil Engineering: Journal of Civil Engineering Development, 17(2).
[10] Apriyanto, RD, & Putro, HP (2018, March). Failure and success rates of information system projects in Indonesia. In National Seminar on Information and Communication Technology (Vol. 4, No. 4, pp. 23-24).
[11] Radar Lombok "Construction Failure Education road contractor fined for failure to complete project"
[12] Ryan Angrian (2013) "Construction failure is a failure that can be caused by:Failure in the process of procuring goods or services, or failure can also occur during the construction process"
[13] Saputra, R., Suraji, A., & Hakam, A. (2016). Analysis of Construction Failures from a Socio–Engineering Systems Perspective. Journal of Civil Engineering, 12(1), 61-70.
[14] S Syakirin, S Sayfuddin, (2024), Analysis of Drought Index with Theory of Run Statistical Method in Dompu Regency,Journal Transnational Universal Studies 3 (4), 231-243, 2024
[15] S Sayfuddin, S Syakirin, Analysis Study of Change Contract Order (CCO) Management on Construction Project Implementation Performance in Central Lombok Regency (2024) Asian Journal of Engineering, Social and Health 3 (4), 785-791, 2024
[16] SSayfuddin (2024) Mitigation of Landslide Disaster Management in Senggigi Tourism Area in West Lombok Regency, Journal Transnational Universal Studies 3 (4), 203-210, 2024