

THE INFLUENCE OF INTERNAL AND EXTERNAL FACTORS ON THE DELAYS OF GOVERNMENT CONSTRUCTION PROJECTS IN WEST PAPUA PROVINCE

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Abstract

Construction work is a work that has a complex system because it involves various parties from the pre-contract stage to the post-contract stage so that it often causes problems of delays in completing work which can result in failure to achieve project objectives. This study aims to analyze internal and external factors that influence delays in government projects in West Papua Province, as well as to analyze the impact of these internal and external factors. The study was conducted in the West Papua Province area covering Manokwari Regency, South Manokwari, Arfak Mountains, Fakfak, Kaimana, Bintuni Bay, and Wondama Bay. The research sample was a construction company located in the West Papua Province area which was taken using the Cluster Sampling technique. The internal factor variables observed included financial problems, human resources, materials. The external variables from the government that were observed included design and planning, Government Regulations of the Special Autonomy Law. While the environmental factors observed included weather conditions. The variables of the impact of delays observed included costs, time, payment, scheduling, and productivity. The data collection methods used were interviews, questionnaires, and documentation. Measurement of variables using a Likert scale, and analyzed using the RII (Relative Importance Index) program to determine the dominant factors causing delays in the completion of construction work, and the impacts caused. This study found that the main internal factors influencing the delay of construction projects were delays in the delivery of materials from outside West Papua, and limited budget or working capital affected the smooth implementation of the project. While the main external factors were direct appointments that did not understand the specifications of the work, direct appointments of contractors from Papuan companies who were not competent in carrying out the work, and design changes made in the middle of the project increased the risk of delays. The existence of internal and external factors of delays has an impact on increasing the time needed to complete the project, rescheduling from the specified time, increasing costs used in completing the project, delays in payments, and decreasing productivity/efficiency of the workforce.

Keywords: *Construction Project Delays, Internal Factors, External Factors.*

INTRODUCTION

The construction industry plays a vital role in enhancing economic development in the growth of a country (Ismail, Rahman, & Memon, 2013). The development of construction projects involves various stakeholders, both government and private, who undertake different processes, phases, and stages of work to achieve the main goal of project success (Takim & Akintoye, 2002). Construction is a complex system due to the involvement of many parties from the pre-contract stage to the post-contract stage, and this complexity can lead to issues that affect project completion performance (Kiew, Ismail, & Yusof, 2013). Abushaban (2008) states that performance is related to several factors such as time, cost, quality, client satisfaction, productivity, and safety. Enshassi, Mohamed, & Abushaban (2009) emphasize that time, cost, and quality are the three most dominant dimensions of performance evaluation. Regarding performance evaluation, Abushaban (2008) mentions that the failure of construction projects is strongly related to issues and failures in performance. Additionally, there are many reasons and factors that attribute to the failure of construction projects. Many construction projects fail in terms of time

performance, quality performance, cost performance, and other performance indicators. The success of a construction project highly depends on the success of its performance. Construction work on a project is challenging, requiring proper project management, such as planning, activity execution, control activities, and project scheduling. A project is considered successful if it is on budget, of high quality, and completed on time. When these three criteria are met, the project becomes a benchmark for success. However, many factors can influence project delays, causing an extension of the work duration beyond the scheduled time.

Project delays are defined as the extension of the project completion time beyond the specified time in the contract or the time agreed upon by the stakeholders involved in the project (Assaf & Al-Hejji, 2006). Kerzner (2017) further explains that project delays refer to shifts in the completion timeline from the original schedule. Chan and Kumaraswamy (1997) also note that project delays occur when a project is executed outside the planned schedule, within a specific period, or after the deadline agreed upon by the stakeholders. Haseeb et al. (2011) explain that delays in construction projects refer to increased costs due to extended work duration, increased labor costs, and rising material costs. Project delays are a common issue in government projects.

Government construction project delays are often caused by various complex and interrelated factors. Delays in projects are frequently complex and multidimensional, involving both internal and external factors. Internal factors such as ineffective project management, inadequate resource allocation, and poor planning can affect the project's schedule and quality. Meanwhile, external factors, such as inconsistent government policies, challenging environmental conditions, and socio-political instability, also contribute to delays.

Internal factors commonly mentioned in the literature include ineffective project management, inadequate resource allocation, and poor planning. Jha and Iyer (2007) assert that incompetent project management can lead to significant delays. Meanwhile, Pinto and Slevin (1988) emphasize the importance of efficient resource allocation in maintaining the project schedule. Furthermore, Turner and Muller (2005) highlight that inadequate planning often contributes to delay issues.

External factors also play a significant role in project delays. Smith and Love (2004) show that regulatory changes and government policy adjustments can lead to project delays. Ogunlana et al. (1996) add that environmental conditions such as poor infrastructure and extreme weather can affect project progress. Moreover, Kwak and Anbari (2009) note that social and political instability can disrupt projects and cause delays.

LITERATURE REVIEW

Theories of Project Delays

Project delays are a common issue in project management, affecting both the public and private sectors. According to Kerzner (2017), project delays can be defined as a shift in the completion time from the planned schedule. These delays often necessitate adjustments in cost, time, and quality, and can negatively impact all aspects of the project.

Traditional Project Management Theory

Traditional project management emphasizes the importance of thorough planning, time control, and risk management as key factors in preventing delays (PMI, 2017). Traditional Project Management Theory, often associated with guidelines from the Project Management Institute (PMI) and reference books such as *A Guide to the Project Management Body of Knowledge (PMBOK Guide)*, highlights several key principles essential for project success. The three main aspects it focuses on are thorough planning, time control, and risk management.

METHOD

Type of Research

This study employs a quantitative approach to gain an in-depth understanding of the factors influencing delays in government projects in West Papua Province. This approach was chosen as it allows for a detailed exploration of both internal and external factors and their impacts on project delays. Quantitative research is a discovery system used to obtain data in the form of numbers, which serves as a tool to describe information about the subject of interest (Kuntjojo, 2010). Furthermore, Sugiyono (2017) mentions that quantitative research methods are based on the positivist philosophy, used to study specific populations or samples.

Data collection is conducted using research instruments, and the data analysis is quantitative, aimed at testing predefined hypotheses. Quantitative research refers to methods of data collection that are based on numbers or statistics. It relies on scientific methods to explain relationships between variables, and it is typically objective and systematic. Quantitative research is understood as a study that heavily uses numerical data, starting from the data

Research Variables and Measurement

Research variables refer to anything that is determined by the researcher to be studied in order to obtain information about the subject and to draw conclusions. A research variable is a characteristic or attribute of individuals or organizations that can be measured or observed and has certain variations established by the researcher to be studied and concluded upon (Sugiyono, 2017).

Delays in construction projects are often a major issue, particularly in the context of government projects in regions with special characteristics, such as West Papua Province. Various factors, both internal and external, contribute to these delays. Internal factors, such as human resources and the unique geographical conditions of Papua, affect the productivity and effectiveness of project execution. On the other hand, external factors, such as the Special Autonomy Law (UU Autonomy) regarding the procurement of goods and services for indigenous Papuans and project tender timing, also play a crucial role in determining project success.

Based on various empirical studies, several dominant variables influence the success and smoothness of construction projects. These variables play a crucial role in determining whether a project can be completed on time, within budget, and with the expected quality. These variables include internal aspects of the project, such as management and resources, as well as external aspects beyond the control of contractors or project owners. The impact of internal and external factors on delays in government construction projects includes effects on cost, time, payment, scheduling, and productivity.

Data Collection Methods

The data collection methods used in this study are as follows:

1. Interviews: Interviews will be conducted with parties involved in the execution of government projects, including project managers, contractors, and government officials. Semi-structured interviews will be used to gather in-depth information about the experiences and perspectives of informants regarding project delays. The interview questions will cover topics such as financial issues, human resources, materials, design and planning, government regulations on special autonomy laws, and weather conditions.
2. Questionnaires: Questionnaires will be distributed to relevant project personnel, such as project workers and management team members. The questionnaires will be designed to identify internal and external factors influencing project delays, as well as the impact of those factors.
3. Documentation: Secondary data will be collected from project-related documents, such as progress reports, planning documents, and administrative records. The documentation aims to complement the data obtained from interviews and questionnaires, and to provide additional context regarding project delays.

Population and Research Sample

Sugiyono (2017) states that a population consists of objects or subjects that have certain quantities and characteristics determined by the researcher to be studied and concluded upon, while a sample represents the amount and characteristics possessed by the population. A sample can be described as a subset of the population that serves as the data source for the research. The population in this study consists of construction companies located in the West Papua Province, obtained from BPS data. Based on the total population, a sample will be selected using the Cluster Sampling technique, where the sample is drawn from a population that is grouped into sub-populations (clusters), and from these sub-populations, a proportional sample is chosen based on the size of the sample.

Data Analysis

The collected data were analyzed through several stages, as follows:

1. Validity Test: The validity of the data was tested using the corrected item total correlation, which utilizes the r-value from the table at a 5% significance level. If the calculated r-value (r_{count}) $>$ r_{table} , the question variables (P1 - P13) are considered valid. Conversely, if the $r_{count} < r_{table}$, the question variables (P1 - P13) are deemed invalid.
2. Reliability Test: The reliability of the data was assessed using the Cronbach's Alpha method. If the Cronbach's alpha value $>$ 0.6, the instrument is considered reliable. Conversely, if the Cronbach's alpha value $<$ 0.6, the questionnaire instrument is considered unreliable or not dependable (Ghozali, 2005).

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3. Analysis Using RII (Relative Importance Index): The RII method was used to determine the influence of the studied factors and the impact caused by these factors. The closer the RII value is to 1, the more influential the factor is on the delay in the execution of construction projects.

$$RII = \frac{\sum PiUi}{N(n)}$$

Where:

- RII: Relative Importance Index
 - Pi: Ranking given by respondents on the cause of delay
 - Ui: Number of respondents who assigned the same weight/rating to the cause of delay
 - N: Total number of respondents
 - n: The highest possible score for the cause of delay
4. Compilation of Construction Project Delay Factors: The RII values from each district were ranked, and the top five factors (ranked 1 - 5) were compiled to determine the dominant factors affecting delays in construction project execution.
 5. Compilation of the Impacts Caused by Project Delays: The RII values from each district were ranked, then compiled to determine the dominant impact of delays in the execution of construction projects.

RESULTS AND DISCUSSION

Data Preparation

Data preparation is the initial process of organizing data that will be inputted using Excel, followed by analysis with statistical software. In this process, it is essential to clarify all the population data to be used in the research, which is obtained from the BPS (Central Statistics Agency) data.

Table 1 Number of Construction Companies in West Papua

Regency	Amount	Type of Business Entity				Business Scale			
		PT	CV	Cooperative Cooperatives	Other	Small	Intermediate	Big	Non-Classified
Manokwari	1,396	225	1,170	1	-	1.154	176	11	55
Arfak Mountains	36	2	34	-	-	27	2	-	7
Fakfak	317	21	294	-	2	283	12	4	18
Kaimana	238	10	228	-	-	226	10	1	1
Bintuni Bay	420	16	403	1	-	384	12	-	24
Wondama Bay	209	1	208	-	-	201	2	-	6

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South Manokwari	90	4	86	-	-	73	3	-	14
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Source: Secondary Data, BPS, 2023

The sampling technique of respondents from the population uses the Cluster Sampling technique, which is sampling from the population that is grouped into sub-sub-populations in clusters, then from the sub-population, a number of samples are selected proportionally based on the size of the sample. The number of samples was determined using the Slovin Formula formula (Sugiyono, 2017) with a tolerated margin of error of 10%.

Table 2 Number of Construction Companies in West Papua

No.	Regency	Population Number (people)	Target Sample Size (person)	Number of Confirmed Samples (person)
1.	Manokwari	1,396	93	27
2.	Arfak Mountains	36	26	5
3.	Fakfak	317	76	13
4.	Kaimana	238	70	8
5.	Bintuni Bay	420	81	9
6.	Wondama Bay	209	68	7
7.	South Manokwari	90	47	6
Amount		2,706	461	75

Source: Processed Primary Data, 2025

The required data were collected using a previously created questionnaire instrument, then distributed online (questionnaire link) to the sample. The data inputted into the data processing system were data provided by a sample of respondents who had reconfirmed their answers as many as 73 people. Analysis using the RII (Relative Importance Index) program of the delay factors of the West Papua government construction projects in each sample area is described as follows:

Compilation of Construction Project Delay Factors

The results of the Relative Importance Index (RII) program test in government projects in West Papua Province with a total of 13 variables assessed by 27 respondents are the values that determine the order that will be displayed in the table and determine the highest to lowest order of the assessment results of each respondent.

Table 3 Compilation of Construction Project Delay Factors in West Papua

No.	Regency	Construction Project Delay Factors	
		Internal	Eksternal
1.	Manokwari	X7, X2, X1	X11, X10
2.	Pegunungan Arfak	X6, X7, X1, X2, X4	-
3.	Fakfak	X6, X3, X5	X11, X10
4.	Kaimana	X4, X6, X3	X8, X10
5.	Teluk Bintuni	X3, X1	X8, X11, X10
6.	Teluk Wondama	X6, X5, X4	X11, X8
7.	Manokwari Selatan	X6, X7, X1, X2	X8

Source: Processed Primary Data, 2025

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External Factors

Internal factors of construction project delays refer to elements or conditions originating within the organization or the project execution itself, which can cause delays in project completion. These internal factors are directly related to project management, resources, and policies implemented by the parties involved in the project.

Table 4, The Dominance of Internal Factors in Construction Project Delays in West Papua.

Variables	Variable Description	Frekuensi	Order (Rank)
X1	Budget constraints or working capital limitations affect the smooth execution of the project	4	2
X2	Delays in payments or installments to the contractor may hinder project progress	3	3
X3	The lack of skilled local labor poses a challenge to the timely completion of the project	3	3
X4	Skilled labor is brought in from outside Papua	3	3
X5	Availability of materials at local stores or distributors in West Papua	2	4
X6	Delays in material deliveries from outside West Papua often become a major obstacle in project implementation	5	1
X7	Unexpected increases in material prices impact project cost overruns	3	3

Source: Processed Primary Data, 2025

The data on the dominance of internal factors of construction project delays in West Papua can be seen that the factor or variable X6 (delay in the delivery of materials from outside West Papua) with an average value of RII of 0.9062, and variable X1 (limited budget or working capital affects the smooth implementation of projects with an average value of RII of 0.8175). The two internal factors (X6 and X1) are the main factors that are very important to receive attention in overcoming the delay in construction projects in West Papua. However, other factors such as X2, X3, X4, and X7 also need to be considered in minimizing the risk of project delays.

External Factors

External factors of delay in construction project work refer to any element or condition that is beyond the direct control of the project team or parties involved in the implementation of the project.

Table 5. Dominance of External Factors of Construction Project Delays in West Papua

Variables	Variable Description	Frequency	Order Rank
X8	Design changes made in the middle of a project increase the risk of delays.	4	1

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X9	The plan drawing lacks detail, which affects the implementation time.	-	-
X10	Direct appointment of a contractor from a Papuan company who is not competent in carrying out the work, resulting in delays	4	1
X11	Direct appointments that do not understand the job specifications resulting in work delays	4	1
X12	High rainfall from September to December disrupted construction activities in the field.	-	-
X13	High humidity levels affect workers' health	-	-

Source: Processed Primary Data, 2025

External factors are usually related to circumstances that cannot be predicted or controlled by the parties working on the project, but can still affect the progress and completion of the work. These external factors can come from the surrounding environment, government policies, social changes, or other factors that are beyond the direct influence of the contractor or project management. Data on the dominance of external factors of construction project delays in West Papua shows that factor or variable X11 (direct appointment of those who do not understand the job specifications) with an average RII value of 0.87525; variable X10 (direct appointment of a Papuan native company contractor for the project who is not competent in carrying out the work) with an average RII value of 0.82275; and X8 (design changes made in the middle of the project increase the risk of delay) with an average RII value of 0.79125. The three external factors (X11, X10, and X8) are the main factors that are very important to pay attention to in overcoming construction project delays in West Papua.

The main internal factors of construction project delays in West Papua are delays in the delivery of materials from outside West Papua, and limited budget or working capital affecting the smooth implementation of the project. Delays in the delivery of materials from outside West Papua are a significant obstacle in the implementation of construction projects. This is closely related to the complex geographical and logistical challenges in the area. West Papua is located in a relatively remote area with limited transportation infrastructure, which can affect the timeliness of delivery of materials needed for construction projects.

West Papua has many areas that are difficult to access, especially to the interior, for example the Arfak Mountains Regency (WJ, INKINDO West Papua, October 5, 2024). road, port, or airport infrastructure can cause delays in the delivery of materials, either from the main port to the project location or between cities (PW, Gapeksindo West Papua, October 10, 2024). Most of the materials shipped from outside West Papua are via sea routes. Bad weather, ship damage, or queues at the port can cause delays in shipping materials (BH, Gapeksindo West Papua, October 10, 2024). Construction materials are often sent from outside West Papua, such as from Java Island (SM, Gapeksindo West Papua, October 12, 2024).

Several other informants provided information that the further the shipping distance, the longer it takes to ship the material, and the greater the possibility of delays. The loading and unloading process at the port or airport can take longer due to the density of goods or other operational problems. Delays can occur if raw material suppliers or material manufacturers experience internal problems, such as difficulties in production or distribution. In addition, if the volume of material shipments from outside West Papua is very high (for example, in large projects or many projects simultaneously), transportation capacity can be limited, thus affecting the timeliness of delivery.

West Papua tends to have tropical weather that is changeable and can be very extreme, such as heavy rain or storms. Such weather conditions can hamper land, sea, or air transportation, and cause delays in delivering materials to the project site. If the material must go through customs procedures or inspections at the port or airport, slow administrative processes can delay delivery. There are also regional policies that regulate the delivery of goods that affect the smooth delivery of materials, especially if there are restrictions or special rules for imported goods.

CONCLUSION

Based on the results of measurements and data analysis through a series of methods used in this study, this study concludes as follows:

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1. The main internal factors of construction project delays in West Papua are delays in material delivery from outside West Papua with an average RII value of 0.9062; and budget or working capital limitations affect the smooth implementation of the project with an average RII value of 0.8175.
2. The main external factors of construction project delays in West Papua are direct appointments that do not understand the job specifications with an average RII value of 0.87525; direct appointment of contractors from Papuan companies who are not competent in carrying out the work with an average RII value of 0.82275; and design changes made in the middle of the project increase the risk of delay with an average RII value of 0.79125.
3. The existence of internal and external factors of delays in government construction projects in West Papua Province has an impact on increasing the time needed to complete the project (X15) with an average RII value of 0.905714; rescheduling of the specified time (X17) with an average RII value of 0.903285; increasing costs used in completing the project (X14) with an average RII value of 0.677000; delays in payments (X16) with an average RII value of 0.672857; and decreasing productivity/efficiency of the workforce (X18) with an average RII value of 0.463714.

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