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A Quantitative Study on the Delays of Government Project Construction in the Department of Public Works and Highways South Cotabato 1st District Engineering Office

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Abstract

This study determined the extent of delay factors affecting government construction projects under the Department of Public Works and Highways (DPWH) South Cotabato 1st District Engineering Office, as perceived by contractors and DPWH technical personnel. Specifically, it examined contractor-related, government-related, project-specific, and external delay factors; compared the perceptions of the two respondent groups; and proposed evidence-based recommendations to improve public infrastructure implementation. The study employed a quantitative descriptive-comparative research design. A validated survey questionnaire was administered to 73 respondents composed of 39 DPWH technical personnel and 34 contractors' technical personnel involved in government construction projects. Data were analyzed using mean, ranking, Shapiro-Wilk test, and Mann-Whitney U test. Findings revealed that all four categories of delay factors were perceived to have a high extent of contribution to project delays. Contractor-related factors obtained an overall mean of 3.1, with late delivery of materials rated very high. Government-related factors obtained an overall mean of 3.0, with legal disputes and road right-of-way issues rated very high. Project-specific factors obtained an overall mean of 3.0, with foundation conditions encountered on-site rated high. External factors obtained an overall mean of 2.9, with the presence of illegal settlers identified as the highest external delay factor. The Mann-Whitney U test showed no significant difference between the perceptions of contractors and DPWH technical personnel across all delay-factor categories. The study concludes that delays in government construction projects are multidimensional public administration concerns involving contractor readiness, government coordination, site-specific conditions, and external stakeholder issues. The findings support the need for stronger project readiness assessment, contractor monitoring, right-of-way coordination, site validation, inter-agency collaboration, and risk management. These recommendations align with public accountability, efficient service delivery, and the United Nations Sustainable Development Goals on infrastructure, sustainable communities, strong institutions, and partnerships.

Keywords: Government Construction Projects; Delay Factors; DPWH; Public Administration; Sustainable Development Goals

1. Introduction

Public infrastructure is one of the most visible instruments of government service delivery. Through roads, bridges, flood control structures, public buildings, and other infrastructure facilities, the government supports mobility, public safety, economic activity, disaster resilience, and community development. In the field of Public Administration, the timely implementation of infrastructure projects is not only a technical concern but also an issue of administrative efficiency, accountability, public resource management, and public service delivery. When government construction projects are delayed, the effects extend beyond the construction site. Delays may result in increased costs, deferred public benefits, inconvenience to communities, reduced economic productivity, and weakened public trust in government institutions.

Construction delay is generally understood as the extension of project completion beyond the approved or agreed project duration. Assaf and Al-Hejji (2006) defined construction delay as a time overrun beyond the completion date stated in the contract or beyond the date agreed upon by the parties for project delivery. Similarly, Durdyev and Hosseini (2019)

described project delay as an overrun beyond the scheduled project completion time. These definitions emphasize that delays are measured not only by the passage of time but also by the failure to meet the planned or contractually approved schedule.

Construction delays remain a persistent concern in many countries. Zidane and Andersen (2018) identified several universal delay factors in construction projects, including design changes or change orders, delays in payments, poor planning and scheduling, poor site management and supervision, incomplete or improper design, inadequate contractor experience, contractor financial difficulties, owner financial difficulties, resource shortages, and poor labor productivity. These findings suggest that delays are not isolated events but recurring risks that affect construction project performance across different countries and contexts.

Durdyev and Hosseini (2019), in a systematic review of construction project delay studies from 1985 to 2018, also identified common delay causes such as weather conditions, poor communication, lack of coordination, conflicts among stakeholders, ineffective planning, material shortages, financial problems, payment delays, equipment shortages, lack of competence among project participants, labor shortages, and poor site management. These findings show that construction delays usually arise from a combination of administrative, technical, financial, managerial, and external factors.

The complexity of construction projects further explains why delays persist. Viles et al. (2020) emphasized that construction projects are unique, site-specific, and dependent on the coordination of people, materials, equipment, information, and administrative decisions. Their quantitative analysis of delay literature highlighted the need to classify and quantify delay causes so that project managers and decision-makers can identify potential risks and introduce appropriate interventions before delay consequences become difficult to control.

In developing countries, construction delays are often associated with resource limitations, financial constraints, weak coordination, bureaucratic procedures, land-related issues, and delays in decision-making. Prasad et al. (2019), in their study of Indian construction projects, found that finance-related causes were among the most critical delay factors, including delays in claims settlement, contractor financial difficulties, payment delays, variation orders, scope changes, and design changes. They also noted that land acquisition and utility-related issues were significant in transport infrastructure projects. These findings are relevant to government infrastructure implementation because public projects commonly involve public funds, regulatory clearances, right-of-way concerns, coordination with stakeholders, and compliance with administrative procedures.

Timely implementation of government construction projects is crucial for enhancing public infrastructure, promoting economic activity, and improving public service delivery. Delays in construction projects, particularly those funded by government agencies, are a pervasive challenge globally and locally. In the Philippines, the Department of Public Works and Highways (DPWH) plays a central role in infrastructure development, yet reports from the Commission on Audit (COA) and local media indicate persistent project delays due to contractor performance, administrative inefficiencies, and external factors (ABS-CBN News, 2023; GMA Integrated News, 2025; The Philippine Star, 2025). The Department of Public Works and Highways (DPWH) serves as one of the principal government agencies responsible for the planning, design, construction, and maintenance of national infrastructure. As an implementing agency, DPWH plays a major role in transforming public funds into tangible infrastructure outputs. However, the effectiveness of this mandate may be affected when projects are delayed. ABS-CBN News (2023), citing findings related to the Commission on Audit, reported concerns over delays involving billions of pesos worth of DPWH projects. This indicates that delays in public infrastructure implementation are not merely operational problems but also matters of public accountability, budget utilization, administrative performance, and service delivery.

In the Philippine context, delays and implementation inefficiencies in public infrastructure projects have remained a major concern in public administration, fiscal accountability, and service delivery. Reports citing COA's 2024 Annual Audit Report on the DPWH indicated that more than ₱138 billion worth of DPWH projects were inefficiently implemented due to issues such as inadequate planning, detailed engineering, supervision, and monitoring. Related reports also flagged delayed, suspended, and unimplemented projects involving billions of pesos, reinforcing the need to examine delay factors in government construction projects at the district engineering office level. These findings show that project delay is not merely a technical concern, but also an issue of administrative efficiency, public accountability, and the timely delivery of infrastructure services.

The concern becomes more significant at the district engineering office level, where actual project implementation, supervision, inspection, monitoring, and coordination take place. The DPWH South Cotabato 1st District Engineering Office is responsible for infrastructure projects within its area of jurisdiction, covering General Santos City and the municipalities of Polomolok, Tupi, and Tampakan. Based on the study's project context, the office handled numerous infrastructure projects in calendar year 2023. Given the number of projects implemented within its jurisdiction, identifying

delay factors is necessary to improve project delivery, strengthen coordination, and support the efficient use of public funds.

1.1 Literature Review

Construction delays are widely recognized as multidimensional and interrelated. Zidane and Andersen (2018) identified universal delay factors, including design changes, payment delays, poor planning, resource shortages, and contractor experience. Durdyev and Hosseini (2019) emphasized that delays result from the interaction of technical, financial, and managerial factors. Contractor-related delays, particularly material procurement and resource readiness, are often the most significant contributors (Assaf & Al-Hejji, 2006; Doloi et al., 2012; Yap et al., 2021).

Government-related factors, including administrative processes, right-of-way issues, and payment delays, have been highlighted in prior studies and local reports (Prasad et al., 2019; ABS-CBN News, 2023; GMA Integrated News, 2025). Project-specific delays, including unforeseen site conditions and foundation challenges, are also significant contributors (Aziz, 2013; Zidane & Andersen, 2018). External factors, such as illegal settlers or environmental conditions, require inter-agency coordination and community engagement (Akinsiku & Akinsulire, 2012; Mpofu et al., 2017).

Mitigation strategies recommended by previous studies include contractor monitoring, project visibility, risk registers, early site validation, and collaborative governance (Arantes & Ferreira, 2020; Zailani et al., 2016; Derakhshanfar et al., 2019). These strategies are critical in public sector projects to ensure accountability, efficiency, and alignment with SDGs

Although many international studies have examined construction delay factors, local and regional conditions may differ. Gebrehiwet and Luo (2017) observed that delay causes may vary across countries, project stages, and project contexts. This means that findings from other countries cannot be directly applied without considering the administrative, socioeconomic, geographic, environmental, and institutional realities of a specific locality. In the case of South Cotabato and the broader SOCCSKSARGEN context, delay factors may be shaped by local site conditions, weather, right-of-way concerns, availability of materials and equipment, contractor capacity, government processes, and coordination between the implementing agency and contractors.

This study is anchored on the premise that delays in government construction projects are influenced by multiple factors involving both internal and external conditions. These factors may arise from the contractor, the implementing government agency, the specific characteristics of the project, or conditions beyond the direct control of the parties involved. Existing literature shows that construction delays are commonly associated with planning deficiencies, payment issues, material shortages, design changes, poor coordination, site conditions, resource limitations, and external disruptions (Durdyev & Hosseini, 2019; Prasad et al., 2019; Zidane & Andersen, 2018). In this study, the respondents are treated as comparison groups rather than as independent variables in the causal sense. The study compares the perceptions of two groups: contractors' technical personnel and DPWH technical personnel. Their perceptions are measured in relation to four categories of delay factors: contractor-related factors, government-related factors, project-specific factors, and external factors.

Thus, this study seeks to determine the extent of delay factors affecting government construction projects implemented by the DPWH South Cotabato 1st District Engineering Office, as perceived by contractors and DPWH technical personnel. Specifically, it focuses on contractor-related factors, government-related factors, project-specific factors, and external factors. By comparing the perceptions of the two respondent groups, the study aims to generate evidence-based findings that may help improve project planning, coordination, monitoring, and implementation. In the field of Public Administration, this study contributes to discussions on infrastructure governance, administrative accountability, public project management, and the effective delivery of government services.

2. Material and methods

2.1 Research Design

This study employed a quantitative research design using the descriptive-comparative method. The quantitative approach was appropriate because the study measured the perceived extent of delay factors using numerical data gathered through a structured survey questionnaire. The descriptive component was used to determine the extent to which contractor-related, government-related, project-specific, and external delay factors affect the implementation of government construction projects. The comparative component was used to determine whether there was a significant difference between the perceptions of contractors and DPWH technical personnel.

The study also used inferential statistical analysis to compare the responses of the two independent respondent groups. Since the study involved ordinal survey data gathered through a Likert-type scale and the normality test indicated that non-

parametric analysis was appropriate, the Mann-Whitney U test was used to determine whether the perceptions of contractors and DPWH technical personnel significantly differed across the four categories of delay factors.

2.2 Locale of the Study

The study was conducted within the area of jurisdiction of the Department of Public Works and Highways (DPWH) South Cotabato 1st District Engineering Office. Historically, South Cotabato was represented in the House of Representatives by three legislative districts beginning in 1987. This changed after the creation of the Province of Sarangani under Republic Act No. 7228, which separated the former third district from South Cotabato. Thereafter, South Cotabato was represented by two legislative districts, with General Santos City previously forming part of the First District. In 2022, Republic Act No. 11804 created a lone legislative district for General Santos City and reapportioned the remaining city and municipalities of South Cotabato into the current legislative districts. This reapportionment was first implemented during the 2022 National and Local Elections.For purposes of this study, the research locale is specifically delimited to government construction projects under the DPWH South Cotabato 1st District Engineering Office. The office covers infrastructure projects in General Santos City and the municipalities of Polomolok, Tupi, and Tampakan.

These areas are significant because they include urban, peri-urban, and municipal settings where government infrastructure projects may encounter varied implementation conditions, including right-of-way concerns, site conditions, coordination requirements, community-related issues, weather exposure, and contractor mobilization challenges.

2.3 Respondents of the Study

The respondents of the study consisted of two groups: DPWH technical personnel and contractors' technical personnel who were directly involved in government construction projects implemented under the DPWH South Cotabato 1st District Engineering Office for Calendar Year 2023. The DPWH respondents included technical personnel involved in project implementation, monitoring, inspection, and supervision, such as project engineers, project inspectors, materials engineers, and other technical staff assigned to infrastructure projects. The contractor respondents included technical personnel representing construction firms involved in DPWH projects, such as project engineers, resident engineers, materials engineers, and other technical representatives responsible for project execution.

2.4 Sample and Sampling Procedure

The study used purposive sampling with complete enumeration of the identified eligible respondents. Purposive sampling was appropriate because the respondents were selected based on their direct involvement in the implementation, supervision, inspection, or technical management of government construction projects under the DPWH South Cotabato 1st District Engineering Office. The researcher used the list of technical personnel and contractors' representatives involved in Calendar Year 2023 projects as the basis for identifying the respondents. Since the number of eligible respondents was manageable, all identified respondents from the two groups were included in the study. This approach allowed the study to gather data from the actual personnel who had direct knowledge and experience regarding project implementation and delay factors.

2.5 Research Instrument

The primary data-gathering instrument was a structured survey questionnaire adopted and modified from related studies on construction delay factors, particularly the study on delays in building construction projects in Ghana. The instrument was revised to fit the context of government construction projects implemented by the DPWH South Cotabato 1st District Engineering Office. To ensure that the questionnaire was appropriate for the study, the instrument was subjected to content validation by three experts in the field of construction and project implementation. The validators reviewed the questionnaire in terms of relevance, clarity, organization, and alignment with the objectives of the study.

2.6 Data Gathering Procedure

The data collection process for this study was carried out through several well-defined steps. Initially, the researcher obtained formal approval from the DPWH South Cotabato 1st District Engineering Office to conduct the research and gain access to the list of technical personnel and contractors involved in 2023 projects. A formal letter outlining the study's purpose was submitted for approval. Once permission was granted, the researcher identified the relevant DPWH technical personnel and contractors' representatives who were directly engaged in project implementation, inspection, supervision, or technical management. Subsequently, the survey questionnaire was distributed to the selected respondents, either in person or through appropriate communication channels. Along with the questionnaire, the researcher provided an explanation of the study's objectives, emphasized the voluntary nature of participation, and assured the respondents of confidentiality. Respondents were given ample time to complete the questionnaire, with the researcher remaining available to address any queries regarding the instrument and the study procedures. Upon completion, the questionnaires were collected, carefully checked for completeness, and then encoded for statistical analysis. In cases where responses were incomplete or unclear, the researcher verified the entries to ensure data accuracy. Finally, the encoded data were subjected

to statistical treatment. Descriptive statistics were applied to assess the extent of delay factors, while inferential statistics were employed to compare the perceptions of contractors and DPWH technical personnel.

2.7 Data Analysis Techniques

This study used a quantitative descriptive-comparative research design to examine the perceived extent of delay factors affecting government construction projects. The study was conducted within the jurisdiction of the DPWH South Cotabato 1st District Engineering Office and involved 39 DPWH technical personnel and 34 contractors' technical personnel, for a total of 73 respondents. A validated survey questionnaire was used to gather data on contractor-related, government-related, project-specific, and external delay factors. The data were analyzed using mean, ranking, the Shapiro-Wilk test, and the Mann-Whitney U test. Through this methodology, the study was able to describe the perceived extent of delay factors and determine whether contractors and DPWH technical personnel differed significantly in their perceptions.

2.8 Ethical Considerations

Participation in the study was voluntary, and the respondents were informed of the purpose of the research before answering the questionnaire. The respondents were assured that their responses would be treated with confidentiality and would be used only for academic purposes. No names of individual respondents were disclosed in the presentation of results. The data were reported in aggregate form to protect the privacy of both DPWH technical personnel and contractors' technical personnel. The study also avoided identifying individual contractors or personnel in a manner that could affect their professional standing or working relationship with the implementing agency.

3. Results and Discussion

3.1 Survey Turnout

The researcher obtained the list of technical personnel and contractors' representatives involved in government construction projects implemented by the DPWH South Cotabato 1st District Engineering Office. Based on the records generated from the Project and Contract Management Application (PCMA) of DPWH-SC1DEO, the respondents consisted of 39 DPWH technical personnel and 34 contractors' technical personnel.

Table 1 *Percentage of Survey Turnout*

Respondents	Questionnaire Distributed	Responses Returned	Percentage of Responses
DPWH Technical Personnel	39	39	100.00%
Contractor's Technical Personnel	34	34	100.00%
TOTAL	**73**	**73**	**100.00%**

Table 1 shows that all 73 questionnaires distributed to the respondents were returned, yielding a 100% response rate. The complete turnout indicates that the respondents were accessible and willing to participate in the study. It also strengthens the completeness of the data because the study included all identified eligible technical personnel from both respondent groups.

The participation of both DPWH technical personnel and contractors' technical personnel is important because construction delay is a multi-stakeholder issue. Aibinu and Odeyinka (2006) emphasized that construction delays result from the actions and inactions of project participants and external factors. Similarly, Akinsiku and Akinsulire (2012) examined construction delay through stakeholder perceptions, recognizing that clients, contractors, and consultants may each contribute to and experience delays differently. In the present study, the inclusion of both contractors and DPWH personnel allows the results to reflect the perspectives of the implementing agency and its project partners.

3.2 Extent of Contractor-Related Delay Factors

Table 2 shows that contractor-related delay factors obtained an overall mean of 3.1, interpreted as High. Late delivery of materials (3.5, Very High) was the most critical factor, consistent with findings in Assaf & Al-Hejji (2006), Doloi et al. (2012), and Yap et al. (2021). Other high-rated factors included manpower, equipment readiness, and financial constraints. This indicates that the respondents perceived contractor-related factors as notable contributors to delays in government construction projects under the DPWH South Cotabato 1st District Engineering Office.

Table 2 *Extent of Contractor-Related Delay Factors*

Component	Mean	Remarks
CRD 1 - Late Deliveries of Materials	3.5	Very High
CRD 2 - Poor Supervision	3.1	High
CRD 3 - Poor Site Management	3.1	High
CRD 4 - Accident During Construction	2.2	Low

CRD 5 - Poor Construction Method	3.0	High
CRD 6 - Insufficient Manpower	3.3	High
CRD 7 - Insufficient Equipment on Site	3.4	High
CRD 8 - Unskilled Equipment Operator	2.9	High
CRD 9 - Breakdown of Equipment	3.1	High
CRD	**3.1**	**High**

This suggests that material delivery is perceived as the most serious contractor-related delay factor. This finding is strongly supported by previous studies. Assaf and Al-Hejji (2006) identified delay in material delivery, late procurement of materials, shortage of materials, and contractor financial difficulty among important delay causes in large construction projects. Aibinu and Odeyinka (2006) also found that suppliers' late delivery of ordered materials, material shortages, contractor financial difficulties, equipment problems, and manpower shortages were important contributors to construction delay.

The high rating for late delivery of materials is also consistent with the findings of Yap et al. (2021), who identified material shortages, delays in transportation, and unreliable sources of materials as delay-related concerns in construction projects. Similarly, Zidane and Andersen (2018), in their review of studies from 46 countries, identified resource shortage, contractor financial difficulty, and poor planning and scheduling among the top universal delay factors in construction projects. These studies support the present finding that material delivery is not a minor operational concern; it affects work sequencing, labor productivity, equipment utilization, and overall schedule performance.

Other contractor-related factors, such as manpower shortages, equipment unavailability, and financial limitations, also received High ratings, consistent with Zidane and Andersen (2018), who identified resource shortages and contractor financial difficulties as universal contributors to construction delays. Similar observations in developing country contexts are reported by Fugar and Agyakwah-Baah (2010), who found that inadequate contractor resource planning and procurement delays significantly affected the timely completion of building projects in Ghana, reinforcing the relevance of contractor performance to project timelines.

3.3 Extent of Government-Related Delay Factors

Table 3 *Extent of Government-Related Delay Factors*

Component	Mean	Remarks
GRD 1 - Delay In Honoring Payment Certificates	2.7	High
GRD 2 - Legal Disputes Issue (RROW Issues)	3.5	Very High
GRD 3 - Insufficient Communication Between Parties	2.9	High
GRD 4 - Necessary Variations	2.8	High
GRD 5 - Mistakes With Soil Investigations	2.9	High
GRD 6 - Poor Design	3.0	High
GRD	**3.0**	**High**

Table 3 shows that government-related delay factors obtained an overall mean of 3.0, interpreted as High. This means that the respondents perceived government-related factors as notable contributors to delays in government construction project implementation. Legal disputes specifically right-of-way issues scored 3.5 (Very High), aligning with Prasad et al. (2019), ABS-CBN News (2023), and GMA Integrated News (2025). Payment delays, insufficient communication, and design issues were also significant, reinforcing administrative inefficiencies as major delay contributors.

GRD2, identified as Legal Disputes or Road Right-of-Way (RROW) Issues, obtained the highest mean of 3.5, interpreted as Very High. This indicates that right-of-way concerns are perceived as the most serious government-related delay factor. In government infrastructure projects, RROW issues may involve land ownership, property valuation, compensation, relocation, utility conflicts, informal settlements, and legal or administrative disputes. These concerns may prevent full site possession, delay mobilization, interrupt construction activities, or cause partial suspension of work. This result is consistent with the literature. Prasad et al. (2019) found that land acquisition delays and utility conflicts were particularly important in transport infrastructure projects. Their study noted that transport projects are often delayed by the failure to provide the required construction site and by works in conflict with utilities.

Sánchez et al. (2020) likewise emphasized that delay factors differ by project type, noting that road infrastructure projects are more exposed to land-related, weather-related, and public-sector implementation issues than building projects. These findings support the present result because DPWH projects commonly involve roads, drainage, flood control, and other infrastructure works that require site access and right-of-way readiness.

3.4 Extent of Project-Specific Delay Factors

Table 4 *Extent of Project-Specific Delay Factors*

Component	Mean	Remarks
PSD 1 - Delay In Honoring Payment Certificates	2.7	High
PSD 2 - Legal Disputes Issue (RROW Issues)	3.5	Very High
PSD 3 - Insufficient Communication Between Parties	2.9	High
PSD	**3.0**	**High**

Table 4 shows that project-specific delay factors obtained an overall mean of 3.0, interpreted as High. This indicates that the respondents perceived site-specific and technical conditions as notable contributors to delays in government construction projects.

Among the project-specific factors, PSD3, identified as Foundation Conditions Encountered on Site, obtained the highest mean of 3.1, interpreted as High. This suggests that foundation and subsurface conditions, such as high water table, unforeseen soil conditions, obstructions, or ground instability, are perceived as important contributors to delay. This finding is supported by Assaf and Al-Hejji (2006), who included the effects of subsurface conditions, such as soil, existing utilities, and high water table, among important delay causes. Aziz (2013) also identified unexpected surface and subsurface conditions, including soil and water table issues, among delay factors in construction projects. These findings are relevant to the present study because government infrastructure projects often involve excavation, drainage, roadworks, flood control, and foundation-related activities that are sensitive to actual site conditions. The high rating for project-specific delay factors also supports the need for thorough site investigation during the pre-construction phase.

Arantes and Ferreira (2020) emphasized that improper planning is an underlying cause of delay, while Mpofu et al. (2017) identified inadequate site investigation, poor site access, severe weather, difficult terrain, and subsurface conditions as site and environmental factors affecting delay. If soil investigation and site validation are inadequate before project implementation, unexpected technical conditions may arise during construction and require redesign, additional quantities, variation orders, or contract time extension.

3.5 Extent of External Delay Factors

Table 5 *Extent of External Delay Factors*

Component	Mean	Remarks
ED 1 - Fluctuation of Prices in the Market	2.6	High
ED 2 - Shortage of Materials	3.1	High
ED 3 - Bad Weather Condition	3.2	High
ED 4 - Unfavorable Site Condition	3.3	High
ED 5 - Obtaining a Permit from the Municipality or City	3.1	High
ED 6 - Obtaining a Cutting Permit from DENR Office	3.2	High
ED 7 - Obtaining Clearances from SOCOTECO and Water District Utilities Offices	3.3	High
ED 8 - Public Holidays	2.1	Low
ED 9 - Shortage of Skilled Workers	2.7	High
ED 10 - Shortage of Unskilled Workers (Laborers)	2.4	Low
ED 11 - Securing Bonds from Bonding Companies (Performance Security Bond, Warranty Bond, and Contractors All Risk Insurance)	2.2	Low
ED 12 - The Presence of Underlying Structures (i.e. Water Line and Telecom Fiber Optics)	3.1	High
ED 13 - Presence of Electric and Telecom Posts	3.2	High
ED 14 - Presence of NIA Irrigation Canal	3.0	High
ED 15 - The Presence of Illegal Settlers Where the Project is to be Constructed	3.4	High
ED 16 - Obtaining a Demolition Permit for the Government Buildings to be Demolished Before Construction	3.2	High
ED	**2.9**	**High**

Table 5 shows that external delay factors obtained an overall mean of 2.9, interpreted as High. This means that external factors are perceived as notable contributors to delay in government construction projects. Among the external factors, ED15, identified as Presence of Illegal Settlers, obtained the highest mean of 3.4, interpreted as High. Akinsiku & Akinsulire (2012) and Mpofu et al. (2017) highlighted that community-related constraints, informal settlements, and public interference are critical contributors to project delays. This indicates that the presence of informal settlers or occupied project sites is perceived as the most serious external factor affecting project implementation. In public infrastructure

projects, informal settlement issues may delay clearing operations, restrict site access, trigger relocation concerns, require coordination with local government units and communities, and complicate right-of-way implementation.

This finding is consistent with studies that identify land disputes, public interruptions, and site access concerns as important delay factors. Prasad et al. (2019) identified land acquisition delays and utility conflicts as major concerns in transport infrastructure projects. Aibinu and Odeyinka (2006) also classified government regulations, inclement weather, civil disturbances, labor disputes, acts of God, and slow government permits as external or extraneous delay factors. These findings support the present result that external conditions, although not always directly caused by the contractor or implementing agency, still affect project completion. Weather-related and environmental factors also obtained High ratings in the external factor category. This supports the findings of Aibinu and Odeyinka (2006), who identified inclement weather as an external delay factor, and Aziz (2013), who included unfavorable weather conditions, unexpected surface and subsurface conditions, and other external disruptions among delay causes. In infrastructure projects, weather disruptions may delay excavation, concreting, earthworks, road construction, drainage works, and hauling activities.

3.6 Difference Between the Perceptions of Contractor's and DPWH Technical Personnel

Table 6 *Mann-Whitney U Test for the Difference Between the Perceptions of Contractors and DPWH Technical Personnel*

Variables	Mean – Contractor	Mean - DPWH	U	p-value	Remarks
CRD	3.1	3.1	549.5	0.599	No Significant Difference
GRD	3.0	2.9	558	0.521	No Significant Difference
PSD	3.0	2.9	535.50	0.734	No Significant Difference
ED	2.9	2.9	514.50	0.957	No Significant Difference

Table 6 shows that there is no significant difference between the perceptions of contractors and DPWH technical personnel across all four categories of delay factors. The Mann-Whitney U test indicated no significant differences across all categories ($p > 0.05$). This aligns with findings by Agyekum-Mensah & Knight (2017) and Aibinu & Odeyinka (2006), who observed that contractors and technical personnel often share similar perceptions of delay factors. The concordance in perceptions substantiates the reliability of the survey data and supports collaborative mitigation strategies. The p-values for contractor-related delay factors ($p = 0.599$), government-related delay factors ($p = 0.521$), project-specific delay factors ($p = 0.734$), and external delay factors ($p = 0.957$) are all greater than the 0.05 level of significance. Therefore, the null hypothesis is not rejected.

This result indicates that contractors and DPWH technical personnel generally share similar perceptions regarding the extent of delay factors affecting government construction projects. This finding is important because construction delay is often associated with blame-shifting between project participants. However, in this study, both groups appear to recognize the same general categories of delay as important. For contractor-related delay factors, both groups had the same mean of 3.1. This suggests that contractors and DPWH personnel similarly recognize the importance of contractor-related concerns such as material delivery, manpower, equipment, financial resources, and site management. This finding aligns with Aibinu and Odeyinka (2006), who found a good degree of consistency among respondents in prioritizing causes of delay. It is also consistent with Akinsiku and Akinsulire (2012), who found no statistically significant difference among stakeholders' perceptions regarding causes and effects of construction delay.

Overall, delays in government construction projects have significant implications for cost, schedule, and stakeholder relations. They can lead to increased project costs, reduced efficiency, and disputes among project participants (Ramanathan, Narayanan, & Idrus, 2012). These findings corroborate the present results, where contractor-related, government-related, project-specific, and external factors were all perceived as contributing notably to project delays.

4. Conclusion & Recommendations

The results of the study show that all four categories of delay factors—contractor-related, government-related, project-specific, and external—were interpreted as High. Contractor-related delay factors obtained an overall mean of 3.1, government-related delay factors obtained 3.0, project-specific delay factors obtained 3.0, and external delay factors obtained 2.9. These findings show that delay in government construction projects is multidimensional. The study concludes that delays in government construction projects, particularly those managed by the DPWH South Cotabato 1st District Engineering Office, are not caused by a single factor but by multiple, interconnected factors. These delays are categorized as contractor-related, government-related, project-specific, and external factors. This aligns with the findings from Zidane and Andersen (2018), who identified universal delay factors affecting construction projects across various countries, including design changes, poor site management, and material shortages. In the context of public infrastructure, these delays affect not only the contractors but also the public administration systems responsible for the projects. The findings

also support the argument of Derakhshanfar et al. (2019) that construction delay risks should be classified and communicated through a clear taxonomy.

In this study, the classification into contractor-related, government-related, project-specific, and external factors helps show that delay is not a single-party problem. Rather, it emerges from the interaction of resources, administrative processes, technical site conditions, and external constraints.

Since both contractors and DPWH technical personnel share similar perceptions of these delay factors, the findings point to the need for collaborative, preventive, and accountable project implementation. Improving government construction project delivery requires stronger planning, better contractor monitoring, right-of-way readiness, technical site validation, community coordination, and institutional risk management. These actions support not only timely project completion but also public accountability, efficient use of public funds, and the broader goals of sustainable infrastructure and responsive governance. Based on the findings and conclusions of the study, the following recommendations are proposed:

Table 8 *Matrix of Project Readiness Checklist*

Area for Verification	Recommended Action
Right-Of-Way Readiness	Confirm land access, ownership status, compensation requirements, and site possession before issuance of Notice To Proceed where applicable
Site Condition	Conduct thorough site validation, soil investigation, and assessment of drainage, foundation, and utility conditions.
Design completeness	Review plans, quantities, specifications, and possible design conflicts before procurement and mobilization.
Utility conflicts	Coordinate early with utility providers regarding relocation or adjustment of affected facilities.
Community concerns	Coordinate with LGUs, barangays, and affected residents before project mobilization.
Risk identification	Prepare a project risk register identifying possible contractor-related, government-related, project-specific, and external risks.

This recommendation is within the scope of public administration because it improves planning quality, reduces implementation uncertainty, and promotes efficient use of public resources.

The study, while offering valuable insights into the delay factors affecting government construction projects under the DPWH South Cotabato 1st District Engineering Office, it has several limitations that may have influenced its findings. First, the study relied on perception-based data gathered through a structured survey, which means the results are subjective and may not fully reflect objective, quantifiable delay data, such as actual project timelines, financial records, or performance metrics. While stakeholder perceptions are valuable for understanding delay factors, they may not capture the full complexity of project delays, particularly those arising from unreported or internal administrative issues. Second, the study focused exclusively on one district engineering office within the DPWH South Cotabato, limiting the generalizability of its findings to other regions or national-level projects. The unique local context, such as regional governance practices, project types, and contractor profiles, may not be applicable across the entire DPWH network. Third, while the study compared the perceptions of contractors and DPWH technical personnel, it did not consider the perspectives of other key stakeholders, such as local government units (LGUs), utility providers, and affected communities, whose involvement may also contribute to project delays. Lastly, the study's cross-sectional design, which focused on data collection at a single point in time (2023), does not account for potential changes in project implementation practices, political shifts, or external factors over time, which could affect the longevity of the findings. These limitations highlight the need for future studies that incorporate a broader range of stakeholders, longitudinal data, and objective performance measures to further explore construction delay dynamics within the public sector.

Compliance with ethical standards

The study adhered to the highest ethical standards throughout its conduct, ensuring full compliance with institutional guidelines and ethical research practices. All participants were informed that participation was entirely voluntary, and written informed consent was obtained from all respondents prior to data collection. The purpose of the study, the voluntary nature of participation, and the confidentiality of responses were clearly communicated to the participants to guarantee that their involvement was based on a well-informed decision. All data gathered were treated with strict confidentiality, and no identifying information was disclosed in the presentation of findings to protect the privacy of the respondents. Ethical approval was secured from the institutional Ethics Committee to ensure that the research was conducted in accordance with the ethical standards of the institution.

Additionally, the study made efforts to disclose any potential conflicts of interest. The authorship responsibility was clearly defined, with all contributors acknowledged for their role in the research process, including data collection, analysis, and the writing of the thesis. Furthermore, the study upheld proper copyright ownership, ensuring that all sources used in the research were duly credited. All ethical considerations were rigorously observed to maintain the integrity and credibility of the research process.

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