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## DELAY AND PROJECT DELIVERY IN ROAD CONSTRUCTION CONTRACTS BY NIGER DELTA DEVELOPMENT COMMISSION (NDDC) - 2019 TO 2024



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### ABSTRACT

Delays in road construction projects are a significant concern across various regions, impacting project delivery and overall success. This study examined the level of delay in road construction project delivery performed by the Niger Delta Development Commission (NDDC), Nigeria. The study adopted both quantitative and qualitative approaches, with secondary data obtained from consulting and contracting firms that have registered and are actually involved in the execution of NDDC road projects in the selected States of the Niger Delta region. The pilot survey revealed a total of one hundred and thirty-six (136) awarded and executed road projects from 33 consulting and 103 contracting firms and organizations, respectively. The total enumeration was adopted using a purposive sampling method, and projects awarded between 2019 and 2024 were considered. Data were analyzed using descriptive analysis and One-way ANOVA. The findings revealed a high level of delay, above two hundred percent (200%) average, on road projects executed by NDDC in Niger Delta regions. The test revealed no significant differences in the level of delay since the significant value

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was greater than 0.05; hence, the hypothesis was accepted. It follows that location has no effect on the level of delay experienced by the contractors involved in the road construction projects. The study concluded that road projects procured by the NDDC experienced excessive delay and recommended that the managers and directors of NDDC road projects should embark on proper contract appropriation, adopt accurate contract documentation, avoid a constant award of contracts to the same team, and prompt release of mobilization fees to parties concerned by the commission.

**Keywords:** *Delay, Performance, Procurement, NDDC, Road Project,*

## INTRODUCTION

The extent of delays and their impact on project delivery with respect to time, estimated budget, and projected quality have become alarming and disturbing and, thus, demand an urgent investigation. Construction of road infrastructure networks enhances free flow mobility and accessibility, thereby fostering economic and national development, but the reverse is the case due to the level of delay.

Various researchers have explored the issue of delays from different perspectives. Aziz and Abdel-Hakam (2016) describe delays as one of the most frequent, costly, and complex challenges in construction, resulting in

prolongation of project time, incurred cost, and reduction in standard, which may be triggered by endogenous or exogenous factors surrounding the task.

Delays affect all stakeholders in a construction project differently, with clients and contractors being the most affected, while consultants are generally considered the least impacted. That is why Al-Kharashi & Skitmore (2009) viewed delay, from the contractors' perspective, as an additional task leading to an extension of time, an increase in overhead costs, and capital trapped down, consequently depriving the contractor of participation in other projects. While Okumbe & Verster

(2008) and Ramanathan *et al.* (2012) emphasized that delay causal factors differ according to and with geographical location and country, factors contributing to delays in rural areas may not have the same level of significance in metropolitan surroundings. In India, Chhotelal *et al.* (2023) highlight that delays in road projects stem from factors such as weather, design changes, and contractor performance, emphasizing the need for transparent responsibility allocation among participants. While in Libya, Alfakhriet *al.* (2018) discovered that delays lead to cost overruns, disputes, and reputational damage, equally revealing the extent of these issues.

There is a clear indication that larger projects tend to experience more significant delays and cost overruns compared to smaller projects. However, this paper described delay in a rudimentary sense to stand for any event or occurrence that elongates the start or completion of any project process beyond the scheduled time, which can vary by location or scope. Therefore, road projects funded by the NDDC, whether

large or small, are not exempt from this issue. With all these definitions of delay by various scholars, the level of delay in infrastructural development in the region has remained the same due to its deplorable condition, especially road construction projects, which this study seeks to investigate. Upon the creation of the NDDC, several road projects were launched to tackle the region's ecological degradation and underdevelopment challenges.

Opawole *et al.* (2013) ascertained that regional economic growth is predominantly based on the number of infrastructures, especially road construction. Hoshang *et al.* (2014) and Omaret *al.* (2020) pointed out that road transportation is a subset of infrastructure that sustains and facilitates rapid development, along with the social and political advancement of society. The importance of good roads cannot be overstated, as they play a vital role in a nation's socio-economic sustainability by enabling access to places of worship, political events, social services, markets, education, healthcare, employment, and production, among other essential activities.

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Examining the extent of delays in relation to project performance, Ogunsemi and Jagboro (2006) noted that construction cost and time are often the key metrics used to assess the success of a construction project and the efficiency of project management. Opawole (2015) conducted a study on project performance, focusing on institutional building projects at selected Nigerian universities, to examine delays and cost overruns.

The findings showed time overruns ranging from 27-33%, primarily due to insufficient cash flow, while cost overruns were reduced because the projects were executed under fixed-price contracts. Similarly, Mahamid et al. (2012) reported that construction projects in Palestine experienced 70%-time overruns and 10-30% cost overruns. In another study, Mahamid (2018) analyzed progress reports from 55 road projects in Saudi Arabia between 2011 and 2015, revealing widespread delays, with actual completion times averaging 58.24% longer than planned and delays ranging from 2% to 172%.

Shankar *et al.* (2021) assessed multiple journals, identifying common causes of delays,

including time and cost overruns, and suggesting strategies for mitigation. Furthermore, Hinai *et al.* (2020) centered on the GCC countries, identifying 63 internal and external factors contributing to road construction project delays, such as consultant and contractor-related issues, natural disasters, and regulatory changes. Kagiri (2005) postulated that time and cost overruns of road construction projects in Kenya ranged from 9.4% to 29%, revealing those critical causative factors to include improper project preparation, scarcity of resources, government bureaucracy, and risk assessment. Ludwig et al. (2020) noted that half of the surveyed countries share similar causes of delays, with 50% identifying the same top ten primary factors contributing to delays in road construction projects. Ekanem *et al.* (2020) modeled time variables in predicting the level of construction project delay quantum from inception in a "no funding-stress scenario."

The findings enlighten the government on policy implications, offering guidance on how to manage and implement regional intervention projects effectively.

However, the findings revealed the non-generalization level of delay based on these significant reasons: restriction to only universities donor-funded projects, which were essentially building projects, while 70% time and 10-30% cost overruns, respectively were in Palestine, and the modeling was focused in no funding-stress contract. Hence, regional and local conditions may restrict the applicability of these studies' findings on delays to road projects in the Niger Delta region.

Based on the preceding studies, it becomes clearer that limited research relating to the study of the level of delay in the execution of special regional intervention road projects was done with similar socio-political, environmental, and economic climates. To address the existing gap, the paper sought to study the level of delay of road projects by NDDC and to establish the significant differences in the level of delay among the Niger Delta States. To achieve this goal, a research question was developed from an objective that stated: What is the level of delay of road construction projects procured by NDDC in the Niger Delta?

Providing an answer to this question will help to determine the level of delay of road projects procured by NDDC in the Niger Delta region, Nigeria. Null Hypothesis was posited for the study:

H01: There are no significant differences in the levels of delay of road projects procured by NDDC among the selected States in the Niger Delta region of Nigeria.

## LITERATURE REVIEW

The Niger Delta Development Commission (NDDC) was established by the Federal Government in response to the Niger Delta community's demands, primarily driven by environmental degradation caused by oil exploration in the area. The Niger Delta region contributes the largest share of Nigeria's wealth. Despite this, the region was spotted for remarkable development in countless constitutional conferences leading up to Nigeria's independence in 1960, yet infrastructural development remains relatively underdeveloped (Agbu, 2005). The ongoing agitation, hostility, and militia movements stem from the

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persistent denial of the region's rights and needs.

The Nigerian constitution initially allocated 50% of the royalties from oil and gas exploration to the region where the oil was extracted, a principle established after the Nigerian Civil War (1967-1970). However, this 50% derivation principle implemented by the government was dropped to 1.5% and 3% and eventually adjusted to 13% after much deliberation (Dafinone, 2007). In response to the region's ongoing challenges, several agencies were created to address these issues, including the Niger Delta Development Board (NDDDB) in 1961, the Niger Delta Basin Development Authority (NDBDA), and the Oil Mineral Producing Areas Development Commission (OMPADEC) in 1992.

Despite their efforts and struggles, these agencies could not perform effectively. This led to the establishment of the Niger Delta Development Commission (NDDC) on December 17, 1999, recognized under Act No. 81 in 2000. The NDDC's vision and mission are to find and sustain long-term solutions to the socio-economic challenges of the Niger Delta region and to promote rapid and

sustainable development, aiming for prosperity, stability, ecological regeneration, and political calm. This was achieved through the effort of Messer Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) of Germany, who was appointed in association with the Nigerian firm of Wilbahi Engineering to coordinate, supervise, and integrate the work of consultants in all areas relevant to the master plan.

Despite significant subsidies allocated to road projects by the Federal Government through the NDDC, many projects awarded since 2000 have yet to be completed. Numerous contracts either never began, were only partially completed, or were entirely abandoned (Ekanem, 2019). This situation can be traced to several issues, including mismanagement of contracts, such as awarding contracts to inexperienced contractors and political allies, dishonesty, inadequate financial support, and inconsistent government policies, among other factors (Anoruo & Braha, 2005).

As a result, construction delays have become a significant concern for stakeholders in the industry.

Aysha et al. (2015) found that delays are a significant issue for construction industry participants, necessitating a thorough investigation. Projects often exceed their scheduled duration due to various factors, including insufficient project knowledge, site conditions, team coordination challenges, lack of capital, and contractual issues, among other unforeseen elements. Khalid *et al.* (2016) found that about seventy percent (70%) of construction projects experienced delays within the range of 10 to 30% of the proposed duration. Similarly, Alhinai & Widyarto (2020);

Durdyev and Hosseini (2020) categorized delay factors into three main groups: client, contractor, and consultant. Among the top causes of time overruns in construction projects is poor site management, insufficient contractor experience, inadequate subcontractors, weather conditions, poor communication, lack of coordination, stakeholder conflicts, ineffective planning, material shortages, financial issues, delays in payment, equipment shortages, inexperience or qualifications among project stakeholders, and labour shortages.

To minimize delays, Mahamid (2017) recommended enhancing the administrative skills of construction parties, improving labour motivation systems, establishing effective communication networks from the project's inception, and applying due process in contract awards. Additionally, verifying the resources and capabilities of bidders is crucial to reducing delays in road construction projects. This study specifically examines the level of delays in road construction project delivery by the NDDC in the Niger Delta region of Nigeria from 2019 to 2024.

## **MATERIALS/METHOD**

Secondary data were sourced from archival data of the NDDC firms, such as bills of quantities (BOQ), interim valuation certificates, and claims, among others; these formed the technical information used for the analysis. Secondary data were collated from NDDC road construction projects awarded between 2019 and 2024 based on initial cost and final cost, award date, and completion period of the projects. A total of one hundred and fifty-three (153) road

construction project contracts were awarded by Niger Delta Development Commission (NDDC), as shown in Table 1.0, out of which only 136 were considered; the study captured six states out of nine states in Niger Delta region which comprised Akwa Ibom, Bayelsa, Cross River, Delta, Edo, and River States. The distribution for the states was 27, 22, 18, 20, 23, and 26, respectively, used for the analysis. The time frame covered the period that most of the NDDC projects, especially road construction projects, were awarded. Descriptive and

inferential statistical techniques were employed. The descriptive method explores the characteristics of the respondents, while the objective of the study was achieved using a one-way ANOVA Test. A null hypothesis was developed to establish the significant difference in the level of delay of NDDC road projects within the selected States. (H01): There are no significant differences in the levels of delay of road projects procured by NDDC among the selected States in the Niger Delta region of Nigeria.

**Table 1.0: Breakdown of the Study Population**

S/N	Professionals	Akwa Ibom	Bayelsa	Cross River	Delta	Edo	Rivers	Total
1	Quantity Surveyors	6	6	2	4	3	4	25
2	Civil/structural Engineers	14	9	8	6	9	14	60
3	Estate Surveyors	2	3	3	6	5	4	23
4	Land surveyors	10	5	6	8	9	7	45
	<b>Total</b>	<b>32</b>	<b>23</b>	<b>19</b>	<b>24</b>	<b>26</b>	<b>29</b>	<b>153</b>

Source: Field Survey 2024

## RESULTS

One hundred and seventeen (117) copies of the structured questionnaire were purposively administered to the professionals in

the study area. Out of which, only 93 copies, representing 79.49%, were collected and found suitable for the analysis using descriptive tools, and the results are presented



in Table 2.0. The academic qualification of the respondents revealed 63.44% at HND level while 36.56% at M.Sc/MPH, portraying that about 81% of the respondents are literate to understand the questions or the explanations given in the course of completing the questionnaires, and this assured confidence in the quality of responses. The professional qualification indicated the reliability of the respondent with 95.70%. Table 2.0 shows the respondents' working experience

of 78.63%, ranging between 5 - 25 years of experience, thus possessing considerable working experience in NDDC road construction projects. Moreover, the respondents' distribution of substantive strategies of the projects reveals that respondents served in one capacity or another in the execution of road construction projects in the study area; hence, their managerial experiences were regarded to be of value, relevant, and fit for the study shown in Table 2.0.

**Table 2.0: Respondents Characteristics**

Attribute	Characteristics	Frequency	Percentage of Total
Respondent's Highest Academic Qualification	HND	18	19.35
	B.SC	41	44.09
	M.SC/MPH	34	36.56
Respondent's Professional Qualification	SURCON	56	66.22
	QSRBN	33	35.48
	COREN	2	2.15
	ESVARBON	2	2.15
	Years of Working Experience	5-15	22
	16-25	49	52.69
	26-35	14	15.05
	36 and Above	8	8.60
Respondent's Designation in the Projects	Project manager	28	30.11
	Site engineer	26	27.96
	Supervisor	20	21.50
	Consultant	19	20.43

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## DISCUSSION

### *Level of Delay of NDDC Road Construction Projects*

The objective of the study was to determine the level of delay in road construction project delivery by the Niger Delta Development Commission (NDDC) in the Niger Delta region, Nigeria. The study achieved this objective by collecting secondary data from the clients, consulting and contracting archives such as bills of quantities, claims, and valuation reports from the selected six States in the Niger Delta region, Nigeria.

The data were subjected to descriptive analysis using one-way ANOVA to determine the level of delay in percentage, as reflected in Table 3.0. The findings revealed a very high level of delay in percentage, which is above 200% in the study area. This implied that road construction projects procured by NDDC experienced excessive delay before and during execution. The study revealed that of a total of 136 road construction projects that were awarded across the six selected States between 2019 and

2024, only 14 (2.33%) of the total projects awarded were completed within the time frame. The overall average delay experienced was 1284.72, indicating an average delay of 214.12% in the study area. This could be attributed to the high level of corruption, awarding contracts to invisible contractors, and misappropriation of funds.

Equally, lack of proper feasibility study, no detailed design and specifications before tendering, pre-qualification exercise, award of contract and commencement of the project led to delay as in the case of 9.7km road construction project in Bayelsa state (Mike, 2019), The report reveals that the 9.7 kilometers Opume-Okoroba village road construction project awarded by NDDC in the year 2012 in Bayelsa State at the cost of N10 billion got delayed after 100% preliminaries mobilization fee was released for prompt commencement of the work.

Subsequently, the report indicated that the road's coordinates at the 0+000 point extended into the

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Opume-Okoroba village burial ground. According to Mike (2019), delays occurred due to the unavailability of complete designs at the time of contract award and site commencement. The project suffered from a lack of feasibility studies and site investigations before design and drawing, inaccurate data provided by the client, and errors stemming from inadequate project knowledge.

Additionally, there were discrepancies in the contract documents: the client's bill of quantities (BoQ) specified sand-cement stabilization, while the design and drawings called for laterite filling, which needed to be more suitable for the specified sub-base.

Shortages of construction materials, such as bitumen, can lead to significant delays, mainly when caused by price fluctuations. Such price differences should be addressed in the contracts. Equipment failures, often due to inadequate maintenance, insufficient workers, or high equipment costs, can also cause delays if contractors are reliant on

specific machinery for extended periods.

These discrepancies in the specifications in the contract document showed the misappropriation of specified materials and a need for coordination among the project team.

Shortage in construction materials like Bitumen and Equipment failure (breakdown) in road construction causes prolonged delays, which makes contractors depend on specific equipment for a long time.

Therefore, aggregating these numerous delay factors with the length of the road, the picture of the conditions resulting in delays in road projects procured by NDDC can be imagined. Based on the result and the report, the high level of delay can be generalized across the study area. A similar finding was reported in Mahamid (2018), which evaluated the progress reports of 55 road projects completed in Saudi Arabia between 2011 and 2015. The study concluded that delays were widespread, with the average ratio

of planned contract duration to actual completion time being 58.24% and delays ranging from 2% to 172%.

**Table 3.0:** Level of Delay of NDDC Road Construction Projects

S/N	States	Total Projects Analysed	Completed on Time	Completed with Overruns	Average Delay (%)
1	AKS	27	6	21	188.89
2	BYS	22	2	20	196.78
3	CRS	18	3	15	139.81
4	DTS	20	2	18	247.08
5	EDO	23	0	23	263.77
6	RVS	26	1	25	248.40
<b>Total</b>		<b>136</b>	<b>14</b>	<b>122</b>	<b>1284.73</b>
<b>Overall Average</b>					<b>214.12</b>

AKS=, Akwa Ibom State, BYS = Bayelsa State, CRS = Cross River State, DTS = Delta State, EDS = Edo State, RVS = River State

### Differences in Level of Delay of Road Performance

To determine whether location affects the level of delays in road projects procured by the NDDC, the null hypothesis (H01) was formulated, stating that there are no significant differences in the levels of delay among road projects procured by the NDDC across the selected states in the Niger Delta

region of Nigeria. This hypothesis was tested using One-way ANOVA with a significance level of  $p \geq 0.05$ . As presented in Table 4.0.

**Table 4.0:** Test of Differences in Level of Delay of Road Performance using One-way Anova Test

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	4234.439	5	846.888		
Within Groups	121106.436	130	931.588	.909	.477
Total	125340.875	135			

The test revealed that there are no significant differences in the level of delay since the significant value is greater than 0.05; hence, the hypothesis was accepted. It follows, therefore, that location has yet to contribute to the high level of delay experienced by the contractors involved in the road construction projects. It can be generalized that the same phenomenon occurred in almost every road project awarded by NDDC in the Niger Delta region. Furthermore, the result shows the constant utilization of the same managerial approach in the execution of the project. This may have arisen from the application of the agency's (NDDC) policies, either of budgetary control, honoring interim payment certificate (IPC), or the repetitive use of the same set of contractors and consultants. It can be

concluded that the factors responsible for the excessive delay experienced in the construction of road projects procured by NDDC are generic.

### **CONCLUSION AND RECOMMENDATIONS**

This study extracted data with their distributions from road construction projects awarded to six selected states, which included Akwa Ibom =27, Bayelsa = 22, Cross River = 18, Delta =20, Edo= 23, and River= 26 States, respectively. The data were subjected to descriptive analysis to determine the level of delay in percentage. The findings revealed a very high level of delay, above 200% on average, in the study area. The hypothesis test at  $p > 0.05$  was accepted, revealing that there is no significant difference in the level of delay among the selected states. It

was concluded that the same phenomenon occurred in almost every road construction project awarded by the commission. This could be attributed to the application of the same managerial approach or the repetitive use of the same set of contractors and consultants in the execution of the projects. The study recommended that the commission should be proactive in decision-making, employ other consultants and contractors rather than constantly use the same team, prepare accurate contract documents, and create professional networking to reduce communication gaps in the construction process in order to minimize excessive delay.

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