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EFFECTS OF ABANDONED ROAD CONSTRUCTION PROJECTS ON THE RESIDENTS OF AWKA SOUTH LOCAL GOVERNMENT AREA, ANAMBRA STATE, NIGERIA

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Abstract

Road construction projects play an important role in enhancing mobility, economic activities, and social well-being. However, when abandoned, they often create more challenges than benefits for affected communities. Consequently, abandoned road projects have become recurring problems that disrupt environmental stability and socioeconomic development. This study evaluated the environmental and socioeconomic effects of abandoned road construction projects on residents of Awka South L. G. A. of Anambra State. The study employed a survey research design. The population for this study comprised all the residents of the five towns of Amawbia, Awka, Isiagu, Nibo and Okpuno in Awka South Local Government Area. The selected roads are; Dan Mmaduka Avenue, Amawbia, Ifite road, Awka, Isiagu Road, Isiagu, Onyenwochi road, Nibo and ObyOkoli Avenue, Okpuno. Sampling combined purposive, proportionate stratified, and systematic techniques to ensure representativeness across five locations.The study employed structured questionnaire as the primary instrument for data collection, targeting residents within a 500-meter radius of abandoned road projects in Awka South L. G. A. Using Yamane's formula, a sample size of 399 was determined, with 386 valid responses returned (96.7% rate). In addition, semi-structured interviews with health workers, business owners, and drivers provided qualitative insights. Data were analyzed using descriptive statistics and ANOVA. Environmental issues identified include air pollution (32.6%), erosion (23.1%), water stagnation (15.3%), and flooding (14.2%), while socioeconomic effects include increased transport costs (34.5%), loss of business income (23.1%), reduced market access (13.5%), among others. The ANOVA and post hoc tests revealed that abandoned road construction projects significantly affect residents' socioeconomic activities across the selected road locations in Awka South L.G.A. ($p = .000$). Impacts varied across locations, with Dan Mmaduka Avenue least affected and Onyenwochi most impacted. From the findings, it was recommended that active involvement of host communities in planning, land acquisition, and monitoring can reduce resistance and foster ownership. Continuous dialogue with stakeholders ensures smoother execution and reduces the risk of abandonment.

Keywords: Road Abandonment, Construction, Projects, Awka South, Anambra State

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1.0 Introduction

Road infrastructure is a vital component of economic development and the overall well-being of societies. It enables the movement of goods and people, fosters economic activity, and facilitates access to essential services such as healthcare, education, and markets. The issue of construction project abandonment is a global issue which is not peculiar to one country. Construction project abandonment is a global challenge, not confined to Nigeria. In Malaysia, weak contract management and funding issues often lead to incomplete projects (Zuhairi et al, 2024). Similarly, in the United States, economic downturns and client bankruptcy contribute to abandonment (Mauk et al, 2025). Spain has experienced project failures due to financial crises and poor planning (Quintas-Soriano et al, 2023). In the United Arab Emirates and Saudi Arabia, delays stem from fluctuating oil revenues (Al-Kaabi, 2021). Likewise, Qatar, Bahrain, Kuwait, and Russia encounter abandonment linked to political, financial, and regulatory constraints (Alsulaiti and Kerbache, 2020).

In developing regions like sub-Saharan Africa, road infrastructure is especially critical for rural development and poverty alleviation (Calderon et al., 2018; Sewell et al., 2019). However, the abandonment of road construction projects can significantly hinder these benefits, leading to severe socio-economic and environmental consequences. Road infrastructure plays a critical role in enhancing socio-economic development and improving the quality of life, particularly in developing countries like Nigeria. The construction and maintenance of roads directly influence access to essential services, economic productivity, and the mobility of goods and people (Pillay, 2023; Sieber and Allen, 2016). However, road construction projects in Nigeria are frequently disrupted due to various challenges, including poor project management, inadequate funding, and political instability, which lead to project abandonment. Such abandonment not only hinders the development of infrastructure but also causes severe socio-economic and environmental consequences for affected communities (Damoah et al., 2020).

In Nigeria, many road construction projects are initiated but left unfinished due to various challenges, such as inadequate funding, political instability, poor project planning, and administrative inefficiencies (Hirschman, 2014). The abandonment of these projects leads to

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economic underdevelopment, deteriorated living conditions, and heightened environmental degradation in the affected areas. Awka South Local Government Area (LGA) in Anambra State, Nigeria, is one such areas that experienced multiple abandoned road construction projects before 2022.

Road infrastructure plays a fundamental role in national development, particularly in economies dependent on transportation for commerce and daily living. Efficient road networks lower the cost of trade and travel, thereby stimulating economic growth (Saidi andOmri, 2020). In Nigeria, where agriculture and trade are key economic sectors, road infrastructure is critical for ensuring that products reach markets for both domestic and international trade. However, despite the essential nature of roads, Nigeria continues to struggle with road infrastructure deficits, especially in rural areas (Onokala and Olajide, 2020). Abandoned road projects exacerbate this infrastructure deficit, leaving communities disconnected, creating safety hazards, reducing property values, and slowing economic activities (Cervero et al., 2017). Over time, these incomplete projects disrupt access to essential services, forcing residents to rely on unsafe or inefficient alternative routes. In some cases, abandoned projects become symbols of government inefficiency, further eroding public confidence in development efforts.

From a socioeconomic perspective, abandoned road projects significantly impact residents' livelihoods. Research by Sewell and Desai (2016) found that communities near abandoned road projects experience a 40% increase in transportation costs due to poor road conditions and restricted access to markets, schools, and healthcare facilities. Business owners and traders in affected areas also report substantial income losses, as inadequate road networks limit customer access. Furthermore, studies have established that poor road infrastructure discourages investment, leading to a decline in property values and business opportunities (Aerni, 2016). Although, all the previously abandoned roads in the study area have now been repaired, there is still limited empirical research that evaluates how their period of abandonment affected residents' socio-economic conditions. While existing literature discuss the general effects of poor infrastructure, few studies have focused specifically on localized

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evidence from Awka South L. G. A. This study evaluated the environmental and socioeconomic effects of abandoned road construction projects in Awka South L. G. A., Anambra State.

2.0 Materials and Methods

The Study Area

This study is centered on Awka South L. G. A, one of the 21 L. G. As in Anambra State, Nigeria (Fig 1). Strategically located in the southeastern region of the country, Awka South L. G. A. serves as the capital of Anambra State and is renowned for its vibrant urban environment. It functions as a significant administrative, commercial, and educational center. The L. G. A. features a mix of urban and semi-urban settings, with a rapidly growing population that relies heavily on road infrastructure for transportation and access to essential services. Situated approximately 15 kilometers northeast of the Niger River, Awka South L. G. A. is bordered by Awka North, Orumba North, Njikoka, and Anaocha L. G. As (Fig 2). It consists of nine towns namelyAmawbia, Awka, Ezinato, Isiagu, Mbaukwu, Nibo, Nise, Okpuno, and Umuawulu. Geographically, it is located at Latitude 6°10'N and 6°15'N and Longitude 7°00'E and 7°10'E (Awka South LGA, 2023), covering a total land area of 164.3 km². With a population density of about 1,600 people per square kilometer, the projected population for 2022 was approximately 270,300 (Anambra State, 2022). Awka South L. G. A. experiences two main seasons, the wet season and the dry season. The region records an average annual precipitation of approximately 2,950 mm, with a climate characterized by an average temperature of 27°C and relative humidity of 70% (Awka South LGA, 2023). The selected roads for the study are located within Amawbia, Awka, Isiagu, Nibo and Okpuno.

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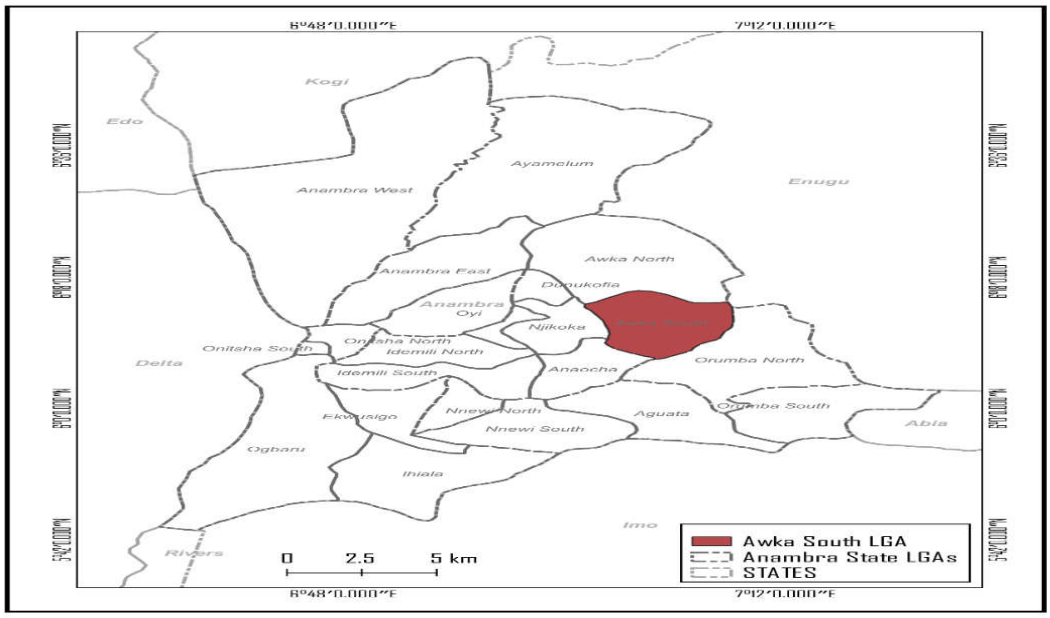

Figure 1: Map of Anambra Showing Awka South LGA

Source: Department of Surveying and Geo-Informatics, NnamdiAzikiwe University, Awka, Anambra State, Nigeria

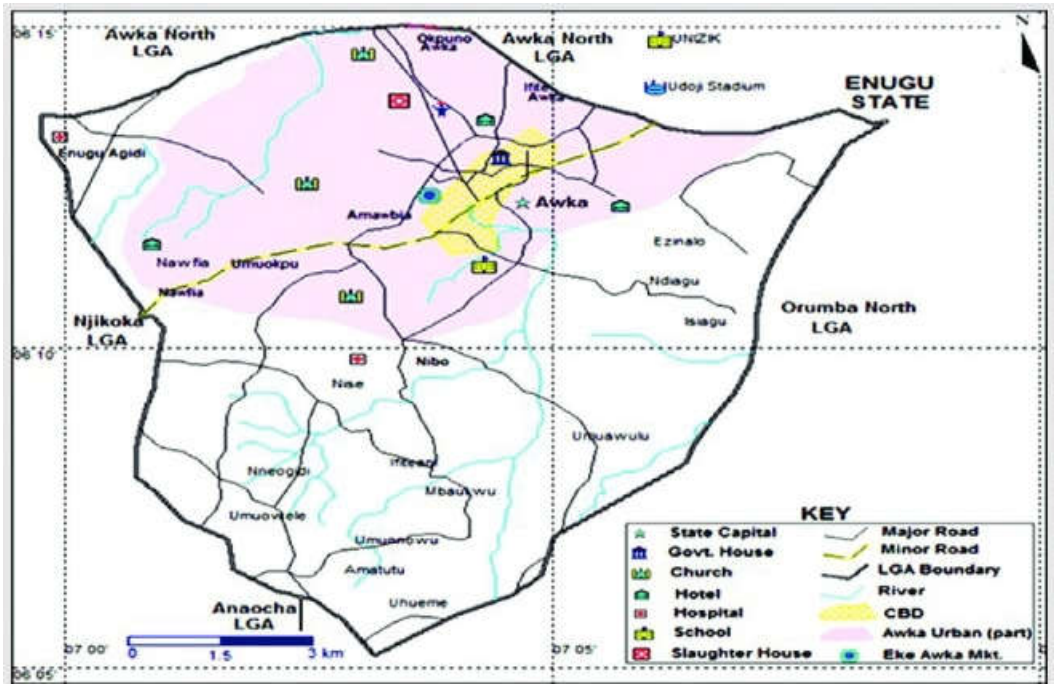

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Figure 2: Map of Awka South showing the study areas, minor roads and major roads

Source: Department of Surveying and GeoInformatics, NnamdiAzikiwe University, Awka, Anambra State, Nigeria

Methods

This study employed a survey research design to evaluate the effects of abandoned road projects on the residents of Awka South Local Government Area, Anambra State. This design was selected to provide a comprehensive understanding of the research problem by integrating numerical data with in-depth insights from stakeholders such as residents, ministry of works, health workers, business operators and drivers. The Quantitative data were collected through structured questionnaire administered to residents, while qualitative data were gathered through semi-structured interviews conducted with ministry of works, health workers, business operators and drivers in the study area.

The population for this study comprises all the residents of the five towns of Amawbia, Awka, Isiagu, Nibo and Okpuno in Awka South Local Government Area. These towns were purposively selected because they experienced abandoned roads and subsequent road repairs. The selected roads are; Dan Mmaduka Avenue, Amawbia, Ifite road, Awka, Isiagu Road, Isiagu, Onyenwochi road, Nibo and ObyOkoli Avenue, Okpuno. Only residents who have lived in these areas for at least five years prior to the road repair in 2022 were eligible for the study. Using satellite-based building footprint analysis, there were a total of 2,742 residential buildings across the selected towns. Each building represents a housing unit from which respondents were drawn for administration of questionnaire. This group spans various demographic characteristics such as age, gender, occupation, education level, and socio-economic status. Their inclusion is essential for understanding the community's experiences and perceptions regarding the environment, social, economic, and infrastructural impacts of both abandoned and repaired roads. The population of Awka South L. G. A. in 2006 was 189,654 (NPC, 2006). With population projection, the population was projected to 2024 using the formular;

$Pt = Po\ (1 + r)^{18}$

Pt = Population of the past

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Po = Population of the present

r = Growth rate

t = Time

With this formula, the projected population stood at 311,791.

To determine an appropriate sample size, this study applied Yamane's formula (as cited by Ukah and Ejaro (2019), which is commonly applied to large populations. This formula calculates the sample size based on the total population (N) and the margin of error (e). Thus;

Where:

n is the required sample size

N is the population size

e is the margin of error (usually 0.05 for a 95% confidence level)

From the calculation, a sample size of 399 was obtained and used for this study.

Table 1: Proportional Distribution of copies of questionnaire according to Sample Size

Road Location	No. of Buildings	Sample Size
Dan Mmaduka Avenue	820	119
Ifite	314	46
Isiagu Road	409	60
ObyOkoli	608	88
Onyenwochi	593	86
Total	2742	399

Administration of questionnaire copies to the respondents is considered the most appropriate data collection instrument for data collection from residents of the area of the affected projects. The total number of questionnaire copies administered were distributed based on the number of residential buildings which falls within the 500 meter radius of each then abandoned road construction project. Out of the 399 copies of questionnaire distributed to the respondents, a total of 386 copies were returned and deemed valid, yielding a return rate of 96.7%. The questionnaire was structured as follows: Section A - This section collected

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demographic information of respondents, such as age, gender, level of education, occupation and duration of residence in the town. Section B - This section contained environmental effects of abandoned road construction. Section C - The section contained the socio-economic impacts of abandoned road construction on residents. Section D - This section contained the perceptions of the residents on road construction during abandonment and after construction in the study area. Section E - This section contained factors contributing to abandonment and non-abandonment of road construction projects.This high response rate suggests strong engagement and interest among respondents regarding the topic of abandoned road construction projects and their impact on residents of Awka South L. G. A. Such a high return rate generally reflects good rapport with respondents, possibly enhanced by the relevance of the study to community concerns. Moreover, a high valid response rate strengthens the credibility and representativeness of the collected data, as it minimizes potential biases and sampling errors that can arise from a low response rate.

A combination of purposive sampling, proportionate stratified sampling and systematic sampling techniques were employed. Purposive sampling was used for the selection of towns. The five towns were selected based on their direct experience with both abandoned and repaired road projects. This purposive selection ensured that the sample population was contextually appropriate for the study. Proportionate stratified sampling was used for sample allocation per town. This study employed a proportionate stratified sampling technique to ensure adequate representation from each of the five selected roads based on the number of residential buildings. Systematic random sampling was used to select buildings within each town, from which respondents were drawn. The sampling interval (k) was calculated by dividing the total number of buildings in the town by the allocated sample size for that town. Using Amawbia for example;

k = 820/119 = 6.9 approximately 7

A random starting point between 1 and 7 was selected using the lucky dip method, and every 7^{th} building thereafter was selected.

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For this study, the descriptive and inferential method of data analysis were utilized. Frequencies, percentages, tables, charts, among others provided a clear summary of the data, making it easier to identify patterns and trends. To test the research hypothesis and explore significant differences or relationships between variables, inferential statistical techniques**,** such as theAnalysis of Variance (ANOVA)**,** was employed. The ANOVA specifically examined whether there were statistically significant differences in the socioeconomic impacts of abandoned road construction projects across the selected road locations. To further explore the sources of variation, post hoc multiple comparison tests were conducted. Specifically, the Least Significant Difference (LSD) test, Tamhane's T2, and Dunnett T3 procedures were applied to compare mean differences between the road locations. These post hoc analyses helped to control for Type I error and to identify where significant differences existed among the groups. The hypothesis was tested at a significance level of 0.05 ($p < 0.05$)**.**

4.0 Results and Discussion

This section presents the findings from the data collected through the questionnaire and provides an in-depth discussion of the results. The analysis of the extent and impact of abandoned road construction projects in Awka South Local Government Area, Anambra State was extensively done.

Table 2: Environmental Effects of Abandoned Road Construction Projects

Environmental Effect	**Frequency**	**Percentage (%)**
Air pollution	126	32.6%
Erosion and land degradation	89	23.1%
Water stagnation leading to mosquito breeding	59	15.3%
Increased flooding	55	14.2%
Noise pollution from stalled machinery	35	9.1%
Others (e.g., loss of vegetation, Disruption of natural drainage systems)	22	5.7%
Total	**386**	**100%**

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The analysis of responses to Table 2, which examines the environmental impacts of abandoned road construction projects on residents of Awka South L.G.A., reveals significant challenges impacting the local environment. The data, as shown on Table 2, highlights multiple environmental issues reported by respondents, with air pollution being the most frequently cited effect as mentioned by 32.6% of respondents. This finding suggests that unpaved surfaces and exposed construction materials on abandoned road sites are major contributors to air quality deterioration in the area. Air pollution not only affects visibility and cleanliness but also poses health risks, particularly respiratory issues such as asthma and bronchitis, for residents living near these sites.

Erosion and land degradation ranked as the second most reported environmental effect, with 23.1% of respondents identifying it as a significant concern. The incomplete and unattended state of roadworks often leaves the soil vulnerable to erosion, especially during rainy seasons, which destabilizes land structures and reduces soil fertility. This effect is particularly detrimental to agricultural activities, as it may render surrounding farmlands less productive and increase the risk of landslides in hilly areas.

Water stagnation, reported by 15.3% of the respondents, was another pressing issue linked to abandoned road construction projects. Incomplete drainage systems and trenches left open during construction create stagnant water pools, which serve as breeding grounds for mosquitoes. This contributes to the prevalence of mosquito-borne diseases such as malaria and dengue fever, adding a public health dimension to the environmental impact of these abandoned projects.

Increased flooding as agreed by 14.2% of the respondents, further underscores the negative implications of abandoned road construction. Unfinished drainage systems and disrupted natural water flow patterns exacerbate flood risks, particularly during heavy rainfall. This flooding not only damages property and infrastructure but also affects access to homes and businesses, thereby disrupting daily activities and increasing repair costs for affected residents. Noise pollution, although less frequently reported (9.1%), remains a concern for

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some respondents. This issue is associated with machinery left on-site or sporadically operated during partial resumption of construction activities. Such noise disturbances can disrupt community tranquility, particularly in residential areas close to abandoned sites. Other effects, mentioned by 5.7% of respondents, include loss of vegetation and disruption of natural drainage systems. Vegetation loss can lead to reduced biodiversity and the destruction of local ecosystems, while altered drainage patterns exacerbate water management issues, contributing further to flooding and erosion problems.

The socioeconomic effects of abandoned road construction projects on the residents of Awka South L.G.A

Table 3: Socioeconomic Impacts of Abandoned Road Construction Projects on Residents

Socioeconomic Effect	Frequency	Percentage (%)
Increased transport costs	133	34.5%
Loss of business income	89	23.1%
Reduced access to markets	52	13.5%
Delay in access to healthcare services	48	12.4%
Decreased school attendance	37	9.6%
Others (e.g., reduced property values)	27	7.0%
Total	**386**	**100%**

The analysis of responses on Table 3, which investigates the socioeconomic effects of abandoned road construction projects on the residents of Awka South L.G.A, highlights several significant challenges faced by the communities. The most frequently reported socioeconomic effect was increased transport costs, identified by 34.5% of the respondents. This finding suggested that the poor state of abandoned roads lead to higher transportation expenses due to longer travel times, detours, and increased vehicle maintenance costs. For residents and businesses reliant on efficient transportation, these additional expenses strain household budgets and operational finances.

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Loss of business income, reported by 23.1% of the respondents, was another critical socioeconomic effect. The disruption of road networks affects customer accessibility and supply chains, reducing the profitability of local businesses. Traders and small-scale enterprises, which depend heavily on steady market flow, are particularly vulnerable to these disruptions. Over time, this loss of income undermines economic stability and growth within the affected communities.Reduced access to markets, as opined by 13.5% of respondents, further emphasizes the economic implications of abandoned road construction projects. Poor road conditions hinder the movement of goods and services, making it difficult for farmers and traders to reach markets to sell their products. This limitation results in unsold goods, especially perishable items, and diminishes income potential for individuals who rely on market access for their livelihoods.

Delays in accessing healthcare services, identified by 12.4% of the respondents, reflect the critical impact of abandoned road projects on public health. Poor road conditions can prevent timely transportation of patients to healthcare facilities, potentially exacerbating medical emergencies. Pregnant women, children, and individuals with chronic illnesses are particularly affected, as their health outcomes depend on swift and reliable access to medical care.Decreased school attendance as mentioned by 9.6% of the respondents, highlighted the indirect impact on education. Abandoned road projects create physical barriers that discourage or prevent students from reaching schools, especially during adverse weather conditions. This disruption contributes to irregular attendance, learning delays, and increased dropout rates, which, in the long term, affect the educational development and opportunities available to children in the area.

Other socioeconomic effects such as reduced property values, were reported by 7.0% of the respondents. Abandoned road construction projects decrease the attractiveness and usability of residential and commercial properties in affected areas, leading to a decline in their market value. This decline discourages investments and reduces the wealth of property owners, further compounding economic challenges.The socioeconomic effects of abandoned road construction projects in Awka South L.G.A. were far-reaching, affecting transportation,

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business operations, market access, healthcare delivery, education, and property values. These challenges not only disrupt daily life for residents but also hinder the overall economic and social development of the affected communities. Addressing these issues require prioritizing the completion of road projects and implementing policies that mitigate the socioeconomic disruptions caused by construction delays.

Test of Hypothesis

Research Hypothesis: The abandonment of road construction projects have no significant effect on the socioeconomic activities of the residents across the selected locations inAwka South L. G. A.

Table 4: Tests of Between-Subjects Effects on the Socioeconomic Impacts of Abandoned Road Construction Projects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	925.803[a]	4	231.451	1186.176	.000
Intercept	2452.559	1	2452.559	12569.261	.000
Road_Location	925.803	4	231.451	1186.176	.000
Error	74.342	381	.195		
Total	3622.000	386			
Corrected Total	1000.145	385			

a. R Squared = .926 (Adjusted R Squared = .925)

The Analysis of Variance (ANOVA) results in Table 4 tested the research hypothesis that abandonment of road construction projects has no significant effect on residents of Awka South L. G. A. The corrected model produced a Type III Sum of Squares of (925.803), with a mean square value of (231.451), yielding an F-statistic of (1186.176) and a significance level of (p = .000). This indicates that the model is statistically significant at the 0.05 level. The intercept accounted for a large variation, with a Type III Sum of Squares of (2452.559), F-statistic of (12569.261), and significance of (p = .000). Road location as a factor contributed significantly to the variation, recording a mean square of (231.451), F-value of (1186.176),

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and significance of (p = .000). The error term was relatively small, with a sum of squares of (74.342) and mean square of (0.195), compared to the corrected total of (1000.145). The R-squared value of (.926) and adjusted R-squared of (.925) show that about 92.6% of the variance in residents' socioeconomic activities is explained by the abandonment of road projects across different locations. Hence, the test of hypothesis shows that the effect of abandoned road construction projects on residents' socioeconomic activities is statistically significant. Therefore, the null hypothesis is rejected, and it is inferred that abandonment of road projects significantly affect the socioeconomic activities of the residents in the study area.

The multiple comparison tests (LSD, Tamhane, and Dunnett T3) were conducted (Appendix Two) to determine how the socioeconomic impacts of abandoned road construction projects differed across road locations in Awka South L.G.A. The results consistently showed significant mean differences (p = .000) between all pairs of locations, with the error term being very low (0.195), indicating reliability of the estimates. Comparisons using LSD revealed that residents along Dan Mmaduka Avenue reported significantly lower negative impacts compared with other locations. The mean differences were (−0.70) with Ifite, (−1.05) with Isiagu Road, (−2.39) with ObyOkoli, and (−4.12) with Onyenwochi. This suggests that Onyenwochi experienced the highest negative impacts, while Dan Mmaduka Avenue had the least. Similarly, Ifite differed from Isiagu Road (−0.35), ObyOkoli (−1.69), and Onyenwochi (−3.43). These differences consistently demonstrated a gradient of impact severity.

When Isiagu Road was compared to other locations, the mean differences were significant: (1.05) against Dan Mmaduka Avenue, (0.35) against Ifite, (−1.34) against ObyOkoli, and (−3.07) against Onyenwochi. This again highlighted Onyenwochi as the most adversely affected. Comparisons involving ObyOkoli revealed significant differences of (2.39) with Dan Mmaduka Avenue, (1.69) with Ifite, (1.34) with Isiagu Road, and (−1.74) with Onyenwochi. Onyenwochi showed the widest disparities. The mean differences were (4.12) with Dan Mmaduka Avenue, (3.43) with Ifite, (3.07) with Isiagu Road, and (1.74) with ObyOkoli. These consistently large positive values emphasize that residents of Onyenwochi

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bore the heaviest socioeconomic impacts of abandoned road projects. The Tamhane and Dunnett T3 post hoc tests confirmed the LSD findings, with nearly identical mean differences across all pairwise comparisons, though accompanied by slightly varied standard errors. Importantly, all mean differences across locations were significant at the 0.05 level (p = .000), strengthening the conclusion that the impacts varied systematically by road location.

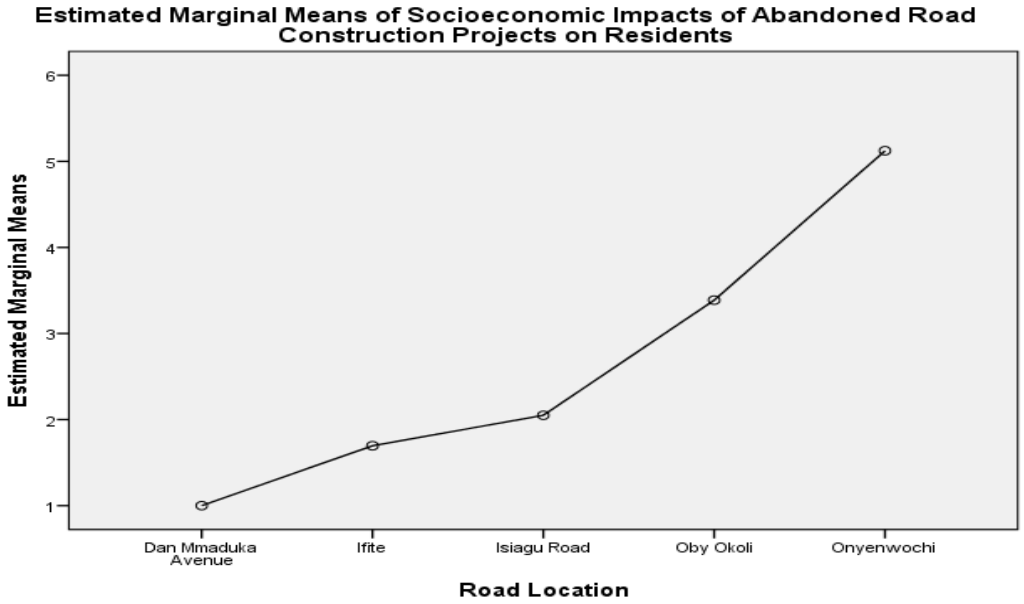

Figure 3: Estimated Marginal Means of Socioeconomic Impacts of Abandoned Road Construction Projects on the Residents across Road Locations in Awka South L. G. A.

The Figure 3 presents the estimated marginal means of socioeconomic impacts of abandoned road construction projects across five road locations in Awka South L.G.A. The plot shows a steady upward trend, indicating increasing levels of negative impacts from Dan Mmaduka Avenue to Onyenwochi. At Dan Mmaduka Avenue, the mean impact is lowest at approximately (1.0), suggesting that residents in this location experienced minimal disruption in terms of socioeconomic wellbeing. Moving to Ifite, the estimated mean increases to about (1.7), reflecting higher adverse effects compared to Dan Mmaduka Avenue. Similarly, Isiagu Road shows a mean of around (2.1), indicating a moderate rise in residents' challenges caused by project abandonment.

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The impacts become more pronounced at ObyOkoli, with the mean reaching approximately (3.3). This value indicates that residents of this location experienced relatively severe socioeconomic consequences. The situation peaks at Onyenwochi, where the estimated mean is highest at about (5.2). This sharp rise illustrates that residents in Onyenwochi bore the heaviest burden of abandoned road construction projects, facing considerable disruptions in mobility, access to services, and overall quality of life. The progressive increase across locations demonstrates a clear gradient of impact severity. The gap between Dan Mmaduka Avenue (1.0) and Onyenwochi (5.2) represents the widest disparity, highlighting location as a critical determinant of socioeconomic effects. This pattern aligns with the ANOVA results, which revealed significant differences among road locations.

Discussion of findings

The data from Table 2 showed that air pollution is the most reported environmental impact of abandoned road construction in Awka South (126 respondents; 32.6%). In contrast, noise pollution from stalled machinery is much less frequent (35 respondents; 9.1%). This finding agrees with recent evidence from Lagos, where residents living near abandoned road projects reported respiratory illnesses caused by dust and particulate matter (Adeniran, Odediran, Ogunlade, Adeagbo, Akanbi, and Adesina, 2025). Erosion and land degradation were also common (89 respondents; 23.1%). In a related study in Ibadan, erosion in peri-urban zones was found to worsen land degradation, affect soil fertility, and increase flooding risks (Adewoyin, Falegan, Abimbola, Ajijola, Adediran, and Adedire, 2024).

Water stagnation and mosquito breeding accounted for 15.3 percent of responses. In a related study, stagnant water in Lagos due to poorly maintained or abandoned drainages contributed significantly to malaria and diarrheal infections (Aminu and Udeze, 2023). Similarly, in Gombe State, abandoned water projects forced residents to depend on unsafe water sources, further contributing to stagnation and disease risks (ICIR, 2022). These studies confirm that abandonment directly creates public health hazards, aligning with findings in Awka South.

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Increased flooding (55 respondents; 14.2%) is strongly linked to erosion and blocked drainage systems. This finding agrees with the Anambra report that described how incomplete flood control works left residents vulnerable to flooding that damaged homes and infrastructure (Efobi and Anierobi, 2013). While flooding was not the most frequent response in Awka South, its destructive potential cannot be underestimated. Other effects such as vegetation loss and disruption of natural drainage (22 respondents; 5.7%) appear less frequent but remain significant. Vegetation loss has been linked to worsening erosion, while disrupted drainage contributes to flooding and mosquito breeding, reinforcing the interdependence of these environmental problems (Nwokeabia, Odoh, Ezealaji and Odinye, 2025). The findings in Awka South are consistent with patterns reported in other Nigerian communities. While air pollution is most prominent locally, the broader literature shows that erosion, flooding, and health risks from water stagnation are equally critical.

The most frequent socioeconomic effect shown in Table 3 is increased transport costs (34.5%). This finding aligns with reports across Nigeria in recent years. In a related study, transport fares were noted to have risen substantially due to poor road infrastructure, as operators pass extra fuel, maintenance and delay costs onto commuters (Wheat, Stead, Huang and Smith, 2019; Onwuamaeze, 2025). In contrast, although loss of business income (23.1%) is the second highest effect for Awka South, some studies show business income being even more severely impacted when road access is cut off entirely. For example, the IcIR (2023) report on an abandoned road in AkwaIbom showed markets shutting down and traders unable to recover losses because of transport disruptions and customers staying away. Additionally, Eduok, (2024) found connection between abandoned buildings and crime in Uyo, AkwaIbom state.

Reduced access to markets (13.5%) is also reported in Awka South. This agrees with findings from rural areas where farmers lose market access because perishable goods spoil in transit and transport delays escalate (Olowosoke, 2022). Delay in access to healthcare (12.4%) is less frequent but still important. In contrast, a qualitative study in Li, Pandian, Davidson, Song, Chen, and Fong, (2025) on non-communicable disease patients showed that poor road

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condition and lack of reliable transport significantly delayed clinic visits, worsening health outcomes. The effect of decreased school attendance (9.6%) is lower in your table than some findings elsewhere. For instance, in Ekiti State, studies found that bad roads make students skip school or arrive very late, particularly during rainy season when roads are impassable (Samuel, Oluwole, Israel, Timothy and Oladimeji, 2025). This suggests that although school attendance is affected, other socioeconomic impacts (transport, loss of business) may be more immediately felt by households in Awka South.

Others (reduced property values, etc., 7.0%) appear less frequent in your sample but are echoed in literature. In findings from national surveys, poor road infrastructure reduces property values in areas close to neglected or abandoned roads because accessibility declines and visible neglect reduces investor confidence. The pattern in Awka South is consistent with recent literature: increased transport costs and business income loss tend to be among the most severe socioeconomic consequences when roads are abandoned (Ryan, 2020). In a related study of road conditions crippling business and inflating food costs, poor roads were shown to drive up the cost of getting goods to market, thus reducing profit margins and sometimes forcing businesses to close or relocate. The cumulative effect of these socioeconomic burdens emphasizes that road abandonment does not only harm infrastructure, but strongly undermines livelihood, health, education and local economic resilience among affected residents (Kahangirwe, and Vanclay, 2024).

The results of the ANOVA and post hoc tests provide strong empirical evidence that the abandonment of road construction projects significantly affects the quality of life of residents in Awka South Local Government Area. The rejection of the null hypothesis is supported by the high F-statistic ($F = 1186.176$, $p = .000$) and the substantial explanatory power of the model ($R^2 = .926$), indicating that over 92% of the variation in residents' socioeconomic conditions can be attributed to abandoned projects. This finding agreed with Venter et al., (2019), who reported that incomplete infrastructure projects significantly constrain mobility, access to services, and economic activity in urban settings.

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In a related study, the World Bank (2022) found that poorly executed road projects in developing countries led to a decline in household income and property values, corroborating the present study's conclusion that project abandonment has profound socioeconomic implications. In contrast, Nadal-Romero et al., (2021) observed minimal impact in cities where alternative routes and transport infrastructure mitigated the effects of abandoned projects, highlighting the moderating role of infrastructural substitutes. The multiple comparison tests further demonstrate spatial disparities in the impacts across locations. For instance, mean differences between Dan Mmaduka Avenue and Onyenwochi (−4.12) and between Ifite and Onyenwochi (−3.43) reveal that residents in Onyenwochi experienced the most severe consequences. This finding agreed with Okereke (2017), who noted that communities located at the endpoints of abandoned projects suffer disproportionately due to isolation and reduced economic opportunities.

Moreover, the observed upward gradient in Figure 4, from Dan Mmaduka Avenue (1.0) to Onyenwochi (5.2) illustrates that the degree of negative impact increases with project incompleteness and poor accessibility. This aligns with the African Development Bank (2023), which reported that communities farthest from functional roads experience higher transport costs and reduced access to social services. Similarly, Kahangirwe and Vanclay (2024) emphasized that abandoned road projects exacerbate poverty and social exclusion.

5.0 Conclusion

The findings of this study demonstrated that abandoned road construction projects in Awka South L. G. A of Anambra State have profound negative impacts on both the environment and the socioeconomic well-being of residents. The effects range from environmental degradation to air pollution, erosion, and flooding to socioeconomic disruptions including inflated transport costs, loss of business income, reduced healthcare access, and educational setbacks. Importantly, the paired analysis confirmed that residents' quality of life significantly improves after project completion, underscoring the indispensable role of road infrastructure in sustainable community development. The persistence of abandonment is largely driven by systemic issues such as inadequate funding, policy inconsistency, and

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corruption, pointing to structural governance and financial challenges within the construction sector.

6.0 Recommendations

Based on the findings of this study, the following recommendations are proposed to address the environmental and socioeconomic impacts of abandoned road construction projects and to prevent such occurrences in the future:

i. Adequate and sustained funding should be ensured through transparent budgeting and timely disbursement of allocated funds. Project financing should be monitored using independent audit mechanisms to prevent diversion of resources.

ii. Active involvement of host communities in planning, land acquisition, and monitoring can reduce resistance and foster ownership. Continuous dialogue with stakeholders ensures smoother execution and reduces the risk of abandonment.

iii. Given the centrality of roads to healthcare, education, and economic growth, government should prioritize completion of road projects in high-impact areas such as markets, schools, and hospitals.

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