Journal of Infrastructure, Policy and Development 2024, 8(14), 9794.
https://doi.org/10.24294/jipd9794

Article

Assessing the impact of Niger Delta Development Commission interventions on road construction and economic activities in Cross River and Akwa Ibom States, Nigeria

Bassey Ekpenyong Anam[1,*], Fidelis Abunimye Unimna[2], Virginia Emmanuel Ironbar[3], Esther Esien-Cobham Uzoh[4], Nsagha Nkang Osaji[5], Onyinye Ogomegbunam Mgbemena[6], Sunday Virtus Agu[7], Odim Otu Offem[2], Veronica Effiom Nakanda[2], Sylvester Akongi Unimke[2], Frederick Awhen Opoh[2], Kuroakegha Bio Basuo[8], Ebuka Paul Nwokolo[9], Victor Ndum Etim[1], Chinyere Helen Dede[10], Glory Bassey Eteng[4], Effiom Eyo Ekpo[1]

[1] Institute of Public Policy & Administration, University of Calabar, Calabar 540211, Nigeria
[2] Department of Social Science Education, University of Calabar, Calabar 540211, Nigeria
[3] Department of Continuing Education and Development Studies, University of Calabar, Calabar 540211, Nigeria
[4] Department of Social Work, University of Calabar, Calabar 540211, Nigeria
[5] Department of Human Kinetics and Health Education, University of Calabar, Calabar 540211, Nigeria
[6] Department of Economics, Michael Okpara University of Agriculture, Umudike 440101, Abia State
[7] Department of Economics, Enugu State University and Technology, Enugu 400102, Nigeria
[8] Department of Management, Niger Delta University, Wilberforce Island, Amassoma 560103, Nigeria
[9] Universiti Kuala Lumpur Business School, Kuala Lumpur 50300, Malaysia
[10] Department of Public Administration, University of Calabar, Calabar 540211, Nigeria
*** Corresponding author:** Bassey Ekpenyong Anam, drbasseyaname@gmail.com

CITATION

Anam BE, Unimna FA, Ironbar VE, et al. (2024). Assessing the impact of Niger Delta Development Commission interventions on road construction and economic activities in Cross River and Akwa Ibom States, Nigeria. Journal of Infrastructure, Policy and Development. 8(14): 9794. https://doi.org/10.24294/jipd9794

ARTICLE INFO

Received: 12 November 2024
Accepted: 15 November 2024
Available online: 20 November 2024

Abstract: Road construction and maintenance are key interventions that support economic potential in the country. However, the deplorable state of some roads in Nigeria, and in Cross River and Akwa Ibom states draws research concerns. This paper seeks to examine the impact of the Niger Delta Development Commission Intervention on road construction and economic activities in Cross River and Akwa Ibom States, Nigeria. Using the Sustainable Development Framework, a survey research design was employed, gathering data from 400 respondents across both states. The chi-square statistical technique was used to test the hypothesis that the Niger Delta Development Commission Intervention has no significant impact on road construction in Akwa Ibom and Cross River States. The result of the data analysis showed the calculated value $X^2 = 1592 > 16.92$. By this result, the null hypothesis was rejected (16.92) at 0.05 level of significance and 9 Degrees of Freedom, and the alternate was accepted. The study concludes that NDDC road projects have positively influenced economic activities and livelihoods in the states. However, it highlights the need for further improvements, particularly on the Calabar-Itu federal highway.

Keywords: road construction; poverty; commuters; sustainable development goal

1. Introduction

1.1. Background of the study

The Niger Delta region of Nigeria is a "paradox of wealth and underdevelopment. Rich in natural resources, particularly crude oil and natural gas, the area is critical to the Nigerian economy, contributing over 90% of the country's crude oil production and a significant portion of its foreign exchange earnings. Despite this vast wealth, the region remains one of Nigeria's most underdeveloped and marginalized areas" (Obiam

and Amadi, 2022), characterized by infrastructural decay, environmental degradation, and insecurity. The region's wealth is not commensurate with the development of its inhabitants. Decades of oil exploration have had severe environmental and social impacts, including widespread pollution, deforestation, and the destruction of marine life. Oil spills, gas flaring, and unchecked industrial activities have destroyed the livelihoods of communities that depend on agriculture and fishing, clearly sinking more into poverty. Infrastructure development has lagged behind the economic importance of the region, with poor road networks, unreliable electricity, etc severely limiting economic opportunities and the quality of life for the inhabitants of the area (Abdullahi and Sieng, 2023; An and Mikhaylov, 2020).

In recognition of these developmental challenges, the "Niger Delta Development Commission (NDDC) was established in 2000 as a Federal Government Agency tasked with addressing the region's infrastructural and developmental needs. The Commission's mandate includes the construction and rehabilitation of critical infrastructure, including roads, as well as the promotion of sustainable development initiatives" (Ebelechukwu et al., 2024). However, the performance of the NDDC in achieving its set objectives remains a recurrent debate. While the Commission has undertaken numerous projects in the Niger Delta, including in Cross River and Akwa Ibom, the results have often been mixed, with many projects suffering from delays, poor execution, and allegations of corruption.

One of the most critical infrastructure issues in the Niger Delta is the state of its road network. Roads are vital to any region's economic growth and development. Much like the human blood circulatory system, they facilitate the movement and circulation of goods, services, and people (Akpan and Morimoto, 2022; Ebelechukwu et al., 2024). A well-developed road network connects rural areas to urban centres, including national and international markets, stimulates economic activities, creates employment opportunities, and improves access to essential services such as healthcare and education. Unfortunately, the road network in Cross River and Akwa Ibom remains inadequate. Many roads are in poor shape, with potholes, uneven surfaces, and in some cases, total collapse, making travel dangerous and costly. This "has had a profound impact on the region's economic potential, limiting the ability of local businesses to compete and reducing access to markets and essential services for its residents" (Ebelechukwu et al., 2024).

In Cross River and Akwa Ibom states, road infrastructure is particularly critical due to the economic significance of these states within the Niger Delta. Cross River State is rich in natural resources, including minerals, and agricultural products, and has the potential to become a major economic hub in southern Nigeria. Its diverse landscapes, cultural heritage, and natural attractions also make it a prime location for tourism. Akwa Ibom, on the other hand, is a leading center of oil and gas production, contributing significantly to Nigeria's energy sector. However, both states have struggled to realize their full economic potential due to poor road infrastructure. Many communities in these states remain isolated, with limited access to urban centres, markets, and essential services. The poor state of road infrastructure in Cross River and Akwa Ibom has a direct impact on their economies. Farmers and traders face difficulties transporting their goods to markets, leading to higher transportation costs and reduced competitiveness for local products (Asaju, 2023). This, in turn, limits the

economic opportunities available to the local population and perpetuates the cycle of poverty (Nawir et al., 2023). Moreover, the lack of good roads has hindered the development of the tourism sector in Cross River, which has the potential to be a major revenue earner for the state.

The role of the NDDC in addressing these infrastructural challenges is crucial. As the "primary government agency responsible for the development of the Niger Delta, the NDDC has been tasked with constructing and rehabilitating roads in Cross River and Akwa Ibom as part of its broader mandate to promote sustainable development in the region" (Ebelechukwu et al., 2024). Road construction and maintenance are seen as key interventions that can unlock the economic potential of these states by improving connectivity, facilitating trade, and enhancing access to essential services. However, the performance of the NDDC in road construction and rehabilitation in Cross River and Akwa Ibom has been inconsistent. While the Commission has initiated numerous road projects in these states, many have been plagued by delays, poor workmanship, and allegations of corruption. In some cases, roads that were completed have quickly fallen into disrepair due to substandard construction materials and a lack of proper maintenance. These challenges have undermined the NDDC's credibility and raised questions about its ability to effectively address the infrastructural needs of the Niger Delta.

This paper seeks to evaluate the NDDC's intervention in road construction in Cross River and Akwa Ibom states, assessing the impact of these interventions on the local economy, accessibility, and the overall quality of life for residents. The NDDC's road intervention efforts in Cross River and Akwa Ibom are of particular importance due to the strategic location of these states within the Niger Delta. Cross River, with its rich agricultural resources and tourism potential, and Akwa Ibom, as a major oil and gas producer as well as an agricultural hub, are both vital to the region's economic development. Improving road infrastructure in these states would not only enhance economic activities but also improve the quality of life for residents by providing better access to healthcare, education, and other essential services.

In addition to evaluating the NDDC's road projects, this paper will also examine the broader implications of the Commission's performance for the development of the Niger Delta as a whole. The challenges faced by the NDDC in Cross River and Akwa Ibom are not unique to these states but are reflective of broader issues affecting the entire region. The Niger Delta remains one of the most underdeveloped areas in Nigeria, despite being the source of the country's wealth. This study will contribute to the ongoing discourse on the role of government agencies and interventionist programs in addressing the infrastructural challenges facing resource-rich but underdeveloped regions. The paper is organized as follows: Section 1 provides the introduction. Section 2 provides an empirical review and the theoretical background that forms the foundation of this study. Section 3 describes the research methodology, including the study design, research area, data collection, and analysis methods. This is followed by a detailed discussion of the findings. Section 4 concludes the paper with key insights and policy recommendations for improvements.

1.2. Statement of the research problem

According to Cross River Watch (2024), "the dire state of the Calabar-Itu road underscores the urgent need for improved infrastructure in the Niger Delta and other regions across the country. As the government struggles with road maintenance, residents are left to navigate dangerous conditions, longing for a safer and more reliable transportation network". ThisDay (2024) reported that "Petroleum tanker and lorry drivers in Cross River have expressed grave concern over the worsening condition of the Federal Roads in the state". In addition, "they cited the multiple dilapidations on the Calabar-Itu, Calabar-Biase, and Ekpugrinya-Ogoja Federal Highways to buttress their worries". Some of the drivers said in an interview with the News Agency of Nigeria (NAN) in Calabar and reported that "most portions of the roads had been rendered impassable by deep potholes". They added that "plying them now posed a danger to the road users and their vehicles". Some of the pictures below explain the critical and deplorable state of the Calabar Itu road, which is a major economic route of the two states. **Figures 1–4** show the current deplorable state of the roads in Cross River and Akwa Ibom state.

Figure 1. Commuters held up in long queues because of bad roads along Calabar Itu.
Source: Channels Television, 2022.

Figure 2. Fallen trucks carrying goods because of bad roads along Calabar Itu.
Source: Channels Television News, Nigeria, 2024.

There are several interventions to fix the road, but it remains a lip service. NDDC has been part of this intervention effort, but the result is abysmal. Calabar Itu Road has become a recurrent item in the Nigerian budget, with no significant impact. This situation serves as a stark reminder of the critical need for investment in infrastructure to support economic growth and development in the region. The results from the study will support the public policy process and efforts of stakeholders involved in the

development of the Niger Delta. By understanding the factors that have influenced the success or failure of the NDDC's road intervention efforts, it will be possible to identify areas for improvement and develop strategies to enhance the Commission's capacity to deliver on its mandate. In particular, this study will provide recommendations for improving the transparency and accountability of the NDDC's operations, ensuring that resources are allocated efficiently and projects are completed to a high standard.

Figure 3. Block roads because of fallen trucks, which left commuters days on the bad roads along Calabar Itu.
Source: Punchng Newspaper, 2016.

Figure 4. Damaged vehicles of commuters, stuck in mud for days because of the bad roads along Calabar Itu.
Source: Arise News, 2021.

1.3. Objective of the paper

The objective of the paper is to examine the impact of the Niger Delta Development Commission Intervention on road construction in Cross River and Akwa Ibom States, Nigeria.

2. Literature review

2.1. Empirical literature

Road construction is key to any socio-economic development of any area. Good roads would guarantee low transportation fairs and facilitate the movement of goods and services. Ebonyi State in the South East is the envy of other states in Nigeria because of the good road network constructed by the former governor, Dave Umahi.

Good roads will attract investors and probably jobs for the people. Quality roads within communities play a pivotal role in supporting trade and fostering development. Warr (2005) highlights that, in Western Nigeria, for example, enhanced road networks have been crucial for facilitating the efficient movement of goods and services. Warr also observes that the recently completed road by the Niger Delta Development Commission (NDDC) in fishing villages has created new routes for transporting food and other materials from rural areas to urban centers in Calabar. This infrastructural improvement has positively impacted the region's socio-economic well-being (Fouquet and Pearson, 2006; Khandker et al., 2009). However, Ndem et al. (2021) discuss that despite the benefits from these road projects, abandoned and unfinished roads undermine developmental progress. They urge the commission to prioritize the completion of such projects. They further note that the commission's projects are targeted interventions aimed at advancing the south-south region's social and economic development through improved road infrastructure.

The Niger Delta region needs a good road network because the region provides ninety percent of revenue generation in Nigeria thus, the need for good roads cannot be overemphasized. The oil-producing region has attracted an increasing number of people and other investors into the region. Good road network and maintenance promote economic activities. According to Ahon (2008) "well designed and maintained roads link locations, and provide access for pedestrians, riders, and vehicles". Similarly, Iloeje (1981) characterizes "roads as fundamental for land development, enabling the extraction of agricultural, mining, and forestry resources, linking various regions, promoting trade between regions, industrial growth, connecting major cities, and supporting the movement of people, military forces, supplies during emergencies, as well as facilitating diverse business activities". With the intervention of road construction, the terrain and topography of the Niger Delta has been difficult considering the overwhelming water bodies that take the area to require much resources to embark on road construction. Kuponyi (2008) noted that "the unique landscape and terrain of the Niger Delta presents significant challenges for both residents and oil development initiatives in the area". Badejo (2011) disclosed that "two of the projects are sited in Abia State, eighth in Akwa Ibom, two in Bayelsa, one in Cross River, and seven in Delta State. Edo state has one, Imo state four, and Rivers four. Road construction and maintenance impact a nation's economy and successful completion of these construction projects leads to wealth creation, socio-economic growth, and improved standard of living" " He added "transportation is seen and regarded as the engine of growth and development in any economy" (Badejo, 2011). According to Nathaniel et al. (2008), "road infrastructure is vital to the development of any human settlement and thus it remains an integral part of the municipality's annual budget".

Road construction for economic development is not only limited to the Niger Delta region and Nigeria. For instance, McGrowder et al. (2009) posited that "the construction of the North Coast Highway in Jamaica affected diverse stakeholders". Study results indicated that "almost 50% of the respondents have positive perceptions of the north coast highway road infrastructural development undertaken to improve accessibility at a regional or urban level and to relieve traffic congestion in these areas" (McGrowder et al., 2009). He explained that "this development is evaluated by

property owners and residents in the affected areas: however, the effect of new roads or highways in particular, may have both positive and negative effects on the housing" (McGrowder et al., 2009). Again, "improved accessibility can shift housing prices upwards, where an increase in traffic noise levels and an increase in traffic density can reduce prices in houses that are adjacent to the new road" (Cooper et al., 1998). According to Masogunle (1980) "documented that the history of road transport in Nigeria dates back to -1904 when Lord Lugard attempted the construction of a mute road linking Zaria and Zungery in the Northern state of Nigeria". He explained that "the construction of roads has become much more popular in our age due to heightened modernization, industrialization, and the various benefits reaped from proper road systems" (Masogunle, 2009). However, the construction process used contributes to environmental pollution and negatively impacts socio-economic activities, necessitating this study.

Khraim et al. (2021) posited that "large-scale spatial planning and urban development initiatives like road infrastructure have been increasingly popular in cities worldwide. Apart from road construction, the constructed roads need to be maintained. Design, construction, repairs, and maintenance of roads are all parts of the complex of operations that make up road construction". Any nation's level of economic growth may be "inferred from the quality of its road construction, which is also an important element in projecting a favorable image of the nation overseas" (Pheng and Hen, 2019). According to Pheng and Hen (2019) stated that "several consistent efforts had been made to address the lack of road infrastructure, resulting in a massive increase in the number of road projects across Ghana in recent years. Road construction and maintenance is part of environmental management. If the road is bad, it can pose a serious environmental crisis".

The construction of roads is fundamental to the economic strata of any area. According to the International Monetary Fund (2020), the road construction sector is a core component of an economy. Jhingan (2011) explains that both developing and developed countries often allocate significant resources toward infrastructure, such as quality road systems, as a means of stimulating investment, distributing income more fairly, and promoting equitable wealth distribution. Road construction and maintenance can even function as a distinct economic sector. Jhingan (2011) also observes that an efficient road network can drive investment, lower unemployment, foster market competition, decrease product and service prices, and ultimately fuel economic growth. Research by Charles et al. (2018) show that government capital investments in road infrastructure and construction contribute positively to a nation's economic development. A study by Amadi and Alolute (2020) examined how government spending on infrastructure affects Nigeria's economic growth from 1981 to 2017. Their survey-based study demonstrated that expenditures in road construction, transportation, communications, education, and healthcare have a notable impact on Nigeria's economic expansion. In another investigation, Prause (2020) assessed the effects of targeted bank credit allocations across various sectors from 1985 to 2019.

A related study by Oyebowale (2019) explored the influence of bank lending on Nigeria's economic growth, specifically in the construction sector, between 1961 and 2017, using the ARDL-ECM analysis method. The findings revealed that loans allocated to construction have a significant and positive effect on economic progress.

Furthermore, Omokano, cited by Oyebowale (2019), employed regression analysis to assess the effect of government expenditures on economic growth in Nigeria from 1989 to 2013, concluding that spending on road infrastructure, transportation, and communication all positively and significantly affect economic growth. Similarly, Ekiran and Olaschinde (2019) analyzed the impact of infrastructure investment on Nigeria's economic growth over the period from 1981 to 2017, applying a vector autoregressive model. Their results indicated that expenditures on road infrastructure and construction exert a positive and substantial influence on Nigeria's economic trajectory.

More studies have been conducted to show the positive impact of road construction in Nigeria and beyond. Charles et al. (2018) applied the Engle-Granger cointegration and error correction model to analyze how government expenditure on infrastructure, particularly, roads and communications, have influenced Nigeria's economy from 1980 to 2016. Their findings indicated that spending on both road and communication infrastructure has shown a negative and statistically insignificant impact on Nigeria's economic growth. In a similar area of research, Mugambi (2016) investigated how investments in road infrastructure contribute to Kenya's economic growth. Covering a 35-year span from 1980 to 2014, the study employed a straightforward linear regression approach, ultimately revealing that both public and private investments in road infrastructure positively affect Kenya's economic expansion. Longe and Omozyawo (2012) view infrastructure spending, particularly on roads and construction, as a crucial fiscal policy tool for driving rapid economic growth and conducted an analysis to assess its impact on Nigeria's economy over the period from 1989 to 2019.

Warr (2005) notes that improvements in the road systems of host communities have streamlined the movement of goods and services, highlighting the importance of reliable roads in local development. He elaborates that the new roads built by the Niger Delta Development Commission, including ring roads in the Adiabo-Esu area, link various farming and fishing communities, thereby facilitating access for traders who buy food items from the area and enabling the transport of agricultural goods to urban centers like Calabar towns. Warr (2005) concludes that many completed infrastructure projects have made a meaningful impact on the socio-economic conditions of the local population, a perspective echoed in related studies. Good road network is an important asset of economic development.

2.2. Theoretical framework

The Sustainable Development Framework (Sachs, 2015) offers a valuable lens through which to analyze the activities of the Niger Delta Development Commission (NDDC) regarding road construction in Cross River and Akwa Ibom states. This theoretical framework is grounded in the integration of economic, social, and environmental dimensions, ensuring that development efforts are both comprehensive and sustainable. By using this framework, the study can assess how the NDDC's road infrastructure projects align with the broader goal of fostering sustainable development in the Niger Delta. Economic sustainability is a key component of this framework and is highly relevant to the road infrastructure interventions in Cross

River and Akwa Ibom. Roads are fundamental to economic activities as they enable the efficient movement of goods, services, and people. In Cross River, known for its agricultural resources and potential for tourism, and Akwa Ibom, a major hub for oil and gas production, the development of road infrastructure is critical for unlocking economic potential. Improved roads can enhance market access for local producers, reduce transportation costs, and facilitate trade, all of which contribute to economic growth. Furthermore, road construction projects generate employment opportunities for local communities, both during the construction phase and in the longer term as improved connectivity spurs private sector investment.

Social sustainability is equally crucial in the context of infrastructure development, particularly in a region like the Niger Delta, where many communities remain isolated and underserved. Roads are not only economic assets but also social lifelines, connecting people to essential services such as healthcare, education, and markets. Environmental sustainability is another critical dimension, particularly in the environmentally sensitive Niger Delta, which has suffered extensive degradation due to decades of oil exploration. Infrastructure development, if not carefully managed, can exacerbate environmental problems such as deforestation, soil erosion, and water pollution. The role of governance and institutional sustainability is also vital in ensuring the success of development initiatives. Effective governance requires transparency, accountability, and stakeholder participation in the planning and execution of infrastructure projects. The NDDC has faced significant criticism for corruption and inefficiency, which have undermined the effectiveness of its interventions. Additionally, institutional sustainability involves the capacity to monitor and evaluate projects to ensure they are completed to a high standard and properly maintained over time.

By applying the Sustainable Development Framework, this study aims to provide a holistic assessment of the NDDC's road interventions in Cross River and Akwa Ibom states. The framework ensures that the analysis considers not only the economic outcomes of these projects but also their social, environmental, and governance implications. Through this comprehensive approach, the study will offer insights into how the NDDC can improve its infrastructure development efforts to achieve more sustainable and equitable outcomes for the Niger Delta region.

3. Methodology

3.1. Research design

The study adopts a survey design method. The design was suitable for the study because it examined the incidence as it had existed, and further used a quantitative research method in collecting data from a set of respondents with the use of questionnaires and interviews.

3.2. Area of the study

The study was carried out in Nigeria's Cross River and Akwa Ibom States, both situated within the South-South Geopolitical Zone, which encompasses part of the Nigeria's eastern coastline. The National Population Commission (2006) describes

this zone as spanning the Atlantic coast from the Bight of Benin in the west to the Bight of Bonny in the east, encompassing much of the Niger Delta—a region vital to the country's environmental and economic landscape. Geographically divided into several unique ecoregions, including the central African mangroves along the southern coast and inland regions such as the Cross-Sanaga-Bioko coastal forests, Cross-Niger transition forests, Niger Delta swamp forests, and Nigerian lowland forests (National Population Commission, 2006). According to the same report, Cross River and Akwa Ibom represent approximately 2% of Nigeria's land area and contribute significantly to the nation's economy due to abundant oil, natural gas, and other mineral resources. Together, these states have a population of around 6.7 million, accounting for roughly 6% of Nigeria's total population (National Population Commission, 2006 Census).

3.2.1. Akwa Ibom State

According to Bassey et al. (2019), "Akwa Ibom State was created on the 23r of September 1987 by the Military Administration of General Ibrahim Badamasi Babangida. The creation of the state brought to reality years of prolonged struggle by the people who occupied the mainland part of the former Cross River State". The state lies between latitude 4.320 and 5.330 North and Latitude 7.350 and 8.250. See **Figure 5**.

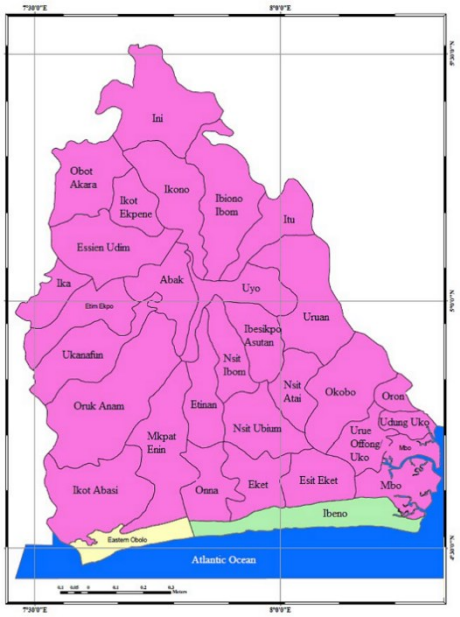

Figure 5. Map of Akwa Ibom State.

Source: Bassey et al. (2019).

Bassey et al. (2019) explained that "the state has boundaries with the following States: Cross River in the west, Rivers State in the east, Abia State in the south, and the south Gulf of Guinea. Akwa Ibom State currently covers a total land area of 7249 square kilometers. The State is the 10th largest state in Nigeria in terms of landmass. About 13.4 percent of the 960 km of Nigeria's Atlantic Ocean Coastline runs through the State" " He disclosed that "the State has 31 local government areas with Uyo as the State Capital. Other major towns include Eket, IKot Ekpene, Ikot Abasi Oron, Abak, Itu, Etinan, Ibeno, etc. The people of Akwa Ibom State are culturally homogeneous with a common identity and are reputed to be the first settlers in present-

day South Eastern Nigeria. The three major dialectical groups are Ibibio, Anang, and Oron" (Bassey et al., 2019).

With the "annual growth rate of the Population Projected at 3.4% the 2016 projected population is estimated at 5,451,277 people". For this study, the population that was used was the National Population Commission (2006) which stood at 3,902,051. The state is an oil-producing State which makes it vulnerable to environmental degradation and close to the Atlantic Ocean which makes some communities susceptible to flood. The communities hit by environmental concerns are Ibeno and Eastern Obolo.

3.2.2. Cross river state

Cross River State lies in the palm forest belt of Nigeria which constitutes one of the more populous areas of the country (Ottong, 1986). "In the 1991 and 2006 population censuses of Nigeria, the population of the State stood at 1,911,297 and 2,888,966 respectively. Cross River State is located in the south-south geopolitical zone of Nigeria" (Edinyang et al., 2020). See **Figure 6**.

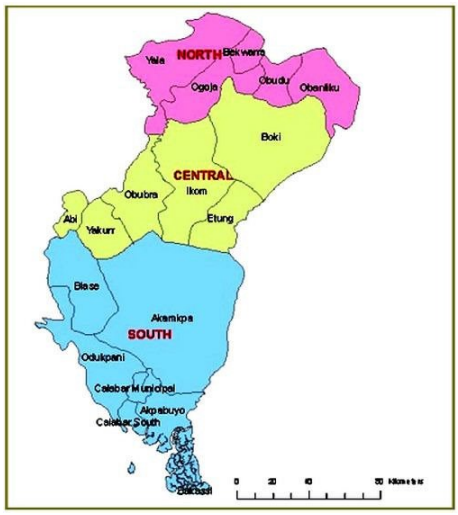

Figure 6. Map of Cross River State.

Source: Edinyang, et al (2020).

The state derives its name from the well-known Cross River. As noted by Edinyang et al. (2020), Cross River State was established from the Eastern Region on 27 May 1967, with Calabar as its capital. The state shares borders with Benue State to the north, Ebonyi State and Abia State to the west, and Akwa Ibom State to the south and southwest. Cross River is the nineteenth largest state by land area and ranks 27th in population, with an estimated population of over 2.8 million as of 2006 (National Bureau of Statistics, 2006). Administratively, the state is divided into eighteen local government areas and is home to various ethnic communities, including the Efik, Ejagham, Bekwara, Ogoja, etc. Following the coastal area of the State, there are communities affected by environmental issues, such communities are Agwagune in the Biase Local Government Area and Igbo-Ekurekwu in the Abi Local Government Area.

3.3. Population and sample of the study

The entire population of the study is made up of the population of Cross River and Akwa Ibom States. The population is 3902051 + 2,888.966 = 6,791,017. Since it is often difficult to study the entire population, thus, the sample size was derived from the population of the study which is 6,791,017. The Tavo Yameni (1967) sample size determinant formula is used to achieve a sample size that gives a good representation and determines the accurate number of respondents. The sample size for the study is 400

3.4. Instrumentation

The researchers developed a research instrument titled "Questionnaire on Niger Delta Development Commission Intervention and Road Construction in Akwa Ibom and Cross River States, Nigeria: The questionnaire has three sections. The first section contained information on the social demographic variables of the respondents. The second section contained the available options that best reflect the opinion of the respondents. These options are: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The third section contained the structured questions and respondents' views.

To ascertain the face validity, the researchers ensured that the entire measuring instrument was scrutinized by experts. To test the reliability of the instrument the researchers used the test-re-test technique. This is a process where the researcher administered the constructed questionnaires to the sample group twice. The method was carried out in under two weeks for real reliability. After two weeks, both scores were correlated with the Pearson Moment Correlation technique to determine the coefficient of stability and uniformity of their respondents to the same questions at different times. A reliable index of 0.05 was taken as a high correlation coefficient.

3.5. The procedure of data collection

The questionnaire was the main instrument for data collection. The method that was used in gathering the primary data was through the use of a questionnaire. The instrument was administered to the 400 respondents, 200 in each State. The questionnaire was administered to adult individuals who reside in communities that have ongoing and completed NNDC road intervention projects across the two states. 400 questionnaires were prepared, distributed to respondents, and retrieved, but only 398 questionnaires were filled and returned correctly. Thus, 398 was used as the sample size.

3.6. Method of data analysis

Chi-square was used because the variables were categorically stated in the hypothesis. The Chi-Square technique was employed in testing the hypotheses for the difference between a set of observed and the corresponding expected frequencies. When calculated Chi-Square (X) is greater than the table values the null hypothesis is rejected and if the reverse is the case the null hypothesis is accepted.

Data analysis: The table below is a summary of data obtained and analysis based on the items in the research questionnaire.

Table 1 Present socio-demographic characteristics of respondents in Cross River and Akwa Ibom States. Regarding gender distribution, the table indicated that the majority 255 (64.1 percent) of the respondents are males, while 143 (35.9 percent) of them are females, representing a minority in the study. In the aspect of marital status, it was revealed that the majority, 200 (50.3 percent) of the respondents are singles, while 184(46.2 percent) were married representing the second highest percentage, while 10 (2.5 percent) are divorced and 4 (1.0 percent) are widowed.

About the age distribution, the table indicated that 20–30 are 98 (24.4 percent), while those within the age range of 31–40 totaled 100 (12.1 percent), and those that fall within the age range of 40–50 are 100 (25.1 percent). For those that fall within the age range of 51–above are 100 (12.1 percent). In line with educational qualifications, the table indicated that 50 (12.5 percent) have attained primary school education and 100 (25.1 percent) have attained secondary school education. The table also indicated that 200 (50.3 percent) have acquired higher institution qualifications. The respondents with other certificates are 48 (12.1 percent). Finally, for religion, the table indicated that the respondents who are of the Christian faith totaled 380 (95.5 percent), this is an indication that the majority of the respondents are Christians. Cross River and Akwa Ibom States are Christian-dominated States. The adherence to Islam is 5 (1.3%) and those who believe in tradition are 13 (3.3 percent).

Table 1. Personal/demographic information of respondents.

S/N		Categories	Frequency	Percentage
A	Gender	Male	255	64.1
		Female	143	3.59
B	Marital Status	Single	200	50.3
		Married	184	40.2
		Divorced	10	2.5
		Widowed	4	1.2
C	years	20–30	98	24.6
		31–40	100	25.1
		41–50	100	25.1
		50–Above	100	25.1
D	Educational background	Primary	50	12.5
		Secondary	100	25.1
		Higher Institution	200	50.3
		Others	48	12.1
E	Religion	Christianity	380	95.5
		Islam	5	1.3
		Traditional	13	3.3
		Others	0	0

Source: Field work, 2024.

Test of Hypothesis: Niger Delta Development Commission Intervention has no significant impact on road construction in Akwa Ibom and Cross River States.

Table 2. Test statistics on Niger Delta Development Commission Intervention and road construction in Akwa Ibom and Cross River States.

X^2 table of analysis	
Chi-Square (X^2)	1592
Table value (*P*. value)	16.92
Df	0.05

x^2 = 1592, Table value = 16.92, df. = 0.05. Source: Authors (2024).

The calculated value X^2 = 1592 > 16.92, the hypothesis that Niger Delta Development Commission Intervention has no significant impact on road construction in Akwa Ibom and Cross River States is rejected. The hypothesis was tested from the responses of the respondents. The results of the analysis presented in **Table 2** indicated that Niger Delta Development Commission has intervened in road construction in Akwa Ibom and Cross River States. The null hypothesis was rejected (16.92) at 0.05 level of significance and 9 Degrees of Freedom (DF). This showed that from the responses of the respondent's Niger Delta Development Commission has intervened in the construction of road projects in Akwa Ibom and Cross River States.

The result of the findings is in line with the position of Orabonune and Warri (2005) posited that "enhancements in the road network within the Western community have facilitated quicker and easier movement of goods and services, thereby stimulating socio-economic activities in the area". The study's findings align with those of Khanter et al. (2009) and Fouquet and Pearson (2006), who observed that roads commissioned by the Niger Delta Development Commission in traditional fishing communities have improved access for buyers of food and materials and enabled local farmers to sell more of their produce to the urban population in Calabar. Additionally, the results support the perspective of Ndem et al. (2021), who describe the Niger Delta Development Commission projects as development initiatives intended to enhance the economic and social growth of the South-South region.

Further reinforcing the study's findings, Ahon (2008) similarly notes that well-constructed and maintained roads are crucial for connecting various locations, serving pedestrians, riders, and vehicles alike. This boosts social and economic activities. The findings also are in tandem with the observation of Kuponyi (2008) posits that "the topography of the Niger Delta has made road construction difficult and expensive, but the roads constructed so far have contributed greatly to economic development in the area". The findings of the study are in line with the views of Badeyo (2011) is of the position that road construction correlated with good and viable transportation systems that contributed to economic development. Similarly, Nathaniel's (2008) position corroborates the findings of the study when the scholar explained that, "road infrastructure is vital to the development of any human settlement and thus it remains an integral part of the municipality's annual budget". The literature is not only limited to Akwa Ibom and Cross River States or Nigeria in general but the review is done generally as Mcgrowder et al. (2000) position aligns with the findings of the study. The scholar posit6ed that, the construction of the north coast highway in Jamaica positively impacted diverse stakeholders. The study result indicated that "almost 50% of the respondents have posited perceptions of the north coast highway road

infrastructural development being undertaken to improve accessibility at a regional or urban level and to relieve traffic congestion in these areas".

To further buttress the findings of the study, the study explained the importance of road construction as it helps to manage the environment and make it comfortable for people to live in. As posited by Pheng and Hen (2019) explained that "several consistent efforts road been made to address the lack of road infrastructure, resulting in a massive increase in the number of road projects across Ghana in recent years. Road construction maintenance is part of environmental management". The position of interactional Manetan Fures (2020) blends with the findings of the study. The interactional Manetan fures is of position that, constructing and maintaining roads is very vital to any economy. The findings of the study are in agreement with the findings of Jhinghan (2011) and Khraim et al. (2021) who explained that "road construction encourages investment, redistribution of income, and ensuring equitable distribution of wealth, this is the reason why most developing and developed countries spend wisely on infrastructural facilities.

The findings of the study are supported by the position of Postow (1950) stated that the construction and maintenance of roads is an economy of its own. Postow and others highlighted that well-developed road systems foster investment, reduce unemployment, and stimulate competition, ultimately leading to lower prices for goods and services and promoting economic growth (Badejo, 2011; Cooper et al., 1998; Kuponyi, 2008; McGrowder et al., 2009; Nathaniel et al., 2008; Postow, 1950). This study's findings are consistent with those by Amadi and Alonlte (2020), who examined how government spending on infrastructure affected Nigeria's economic growth from 1981 to 2017. Their results demonstrated that investments in roads, construction, transportation, communication, education, and health significantly influence Nigeria's economic growth. Additionally, the study resonates with Prause's (2020) research on how sector-specific credit allocations influenced economic growth between 1985 and 2019. Prause employed an error correction model and found that credit directed toward road construction had a positive effect on Nigeria's economic development. Similarly, Oyebowale's (2019) study supports these findings by analyzing the impact of sectoral lending on Nigeria's economic growth over the period from 1961 to 2017. It was discovered that bank lending to construction has positive indicators for the economic growth of the country.

4. Conclusion and recommendation

The data analysis shows that NNDC's intervention in road construction has a significant impact on economic activities in the two states. However, the study draws attention to existing deplorable road networks in the two states, which call for quick intervention, particularly the Calabar Itu Road. The recurrent bad state of the road has affected economic activities in Cross River and Akwa Ibom State.

The study recommends that the government should increase the funds allocated to Niger Delta Development Commission to enable them to control erosion in Akwa Ibom and Cross River States. These states are surrounded by large water bodies that make them prone to erosion. The findings indicated that more drainages need to be constructed to channel the flow of heavy water movement to the appropriate places.

Both Akwa Ibom and Cross River States are expanding due to population growth and this need becomes increasingly vital as population growth intensifies demands on land and infrastructure.

Furthermore, road construction in Akwa Ibom and Cross River States by the Niger Delta Development Commission should not be limited to State capital and Local Government Headquarters. Rural areas where crude oil is explored should be given adequate attention in road construction and maintenance. Good roads correlate with socio-economic development. Good roads can improve the economy of both states. Also, durable roads should be constructed and maintained to avoid newly constructed being washed away due to heavy rainfall.

In conclusion, while the Niger Delta Development Commission's efforts have made strides in enhancing economic activities, addressing gaps in infrastructure and maintenance is vital for sustainable development, especially in the Niger Delta region. This study therefore highlights the need for further research on the long-term impacts of road construction and maintenance practices, as well as other infrastructure development projects on economic growth and community well-being in the region. Specifically, future studies should focus on the effectiveness of maintenance strategies for newly constructed roads, the socio-economic benefits of improved rural road access, and the resilience of these infrastructures against environmental challenges such as erosion and heavy rainfall. Investigating these areas will contribute to more effective policy-making and better resource allocation for road infrastructure projects in the region.

Author contributions: Conceptualization, BEA, FAU and VEI; methodology, EECU and NNO; resources, data curation, OOM, SVA and OOO; writing—original draft preparation, BEA, VEN and SAU; visualization, BEA, FAO and OOO; validation, KBB; formal analysis, EPN; investigation, supervision, FAU, VNE and CHD; project administration, SVA, NNO and OOM; funding acquisition, BEA, VEI, KBB and GBE; software, VEN, EEE and CHD. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

References

Abdullahi, A. and Sieng, L.W. (2023) 'The effect of infrastructure development on economic growth: The case of sub-Saharan Africa,' Journal of Infrastructure Policy and Development, 7(2), p. 1994. https://doi.org/10.24294/jipd.v7i2.1994.

Akpan, U., & Morimoto, R. (2022). An application of Multi-Attribute Utility Theory (MAUT) to the prioritization of rural roads to improve rural accessibility in Nigeria. Socio-Economic Planning Sciences, 82, 101256. https://doi.org/10.1016/j.seps.2022.101256.

Amadi, K. C. & Alolote, I. A. (2020). Government expenditure on infrastructure as a driver for economic growth in Nigeria. International Journal of Economics and Financial Issues 8(3), 260-267.

An, J. and Mikhaylov, A. (2020) 'Russian energy projects in South Africa,' Journal of Energy in Southern Africa, 31(3), pp. 58–64. https://doi.org/10.17159/2413-3051/2020/v31i3a7809.

Arise News (2021) Nigerian approves N185bn for Calabar-Itu Highway project. https://www.arise.tv/nigerian-approves-n185bn-for-calabar-itu-highway-project/.

Asaju, K. (2023). Infrastructural development and development administration: A retrospective. Journal of Foresight and Thought Leadership, 2(1). https://doi.org/10.4102/joftl.v2i1.22.

Badejo, B. A. (2011). Transportation: Removing the clog to Nigeria's development Anchorage press and published.

Bassey, C.E. et al. (2019) 'Textural and heavy minerals characterization of coastal sediments in Ibeno and eastern Obolo local government areas of Akwa Ibom State – Nigeria,' Journal of Geosciences and Geomatics, 7(4), pp. 191–200. https://doi.org/10.12691/jgg-7-4-4.

Channels Television (2022) Motorists lament the deplorable state of Calabar Odukpani-Itu Road. [Photograph]. https://www.youtube.com/watch?v=Kesai_AfUHY.

Charles, D., Onuchuku, O. & Jamuno, S. O. (2018). Government expenditure on construction, transportation, and communication on economic growth in Nigeria. International Journal of Scientific Research, 3(2) 39-47.

Cooper, M. C., Lambert, D. M. & Pagh, J. O. (1998). Supply chain management is more than a new name for logistics. International Journal of Logistic Management, 1: 81-13.

Cross River Watch (2024). Travelers Tarry, Lament Deplorable Calabar-Itu Road. https://crossriverwatch.com (August).

Daily Post Nigeria (2024). Akwa Ibom lawmaker raises alarm over the deplorable state of Calabar/Itu highway. [Photograph]. https://dailypost.ng/2024/10/27/akwa-ibom-lawmaker-raises-alarm-over-deplorable-state-of-calabar-itu-highway/.

Ebelechukwu, A. O., Victor, O. I., Sunday, O. C., John, O. N., & Wisdom, O. (2024). Transportation Infrastructure Development and Nigeria's Economy: An Empirical Investigation. International Journal of Social Science, Technology and Economics Management, 1(2). https://doi.org/10.59781/ripi3024.

Edinyang, Sunday & Effiom, Veronica & Nakanda,. (2020). Social Issues Influencing Academic Performance of Secondary School Students in Social Studies in Calabar Education Zone, Cross River State, Nigeria. European Journal of Social Sciences. 59. 91-106.

Ekiran, J.O.& Olasehinde, I.O. (2019). Infrastructural development and economic growth in Nigeria. Journal of Economic and Sustainable Development, 10(24) 67-73.

Fouquet, N. & Pearson, C. (2006). Strategic management: A stakeholder approach. Boston: Pitman.

Iloeje, I. (1981). Meeting Basic Needs: Strategies for Eradicating Mass Poverty and Unemployment. Genera .Journal of Review, (3) PP 45 -67

International Monetary Fund (2020). Well Spent: How strong infrastructure governance can end waste in public investments.

Jhinghan, M.L. (2011). The economics of development and planning. Vrinda Publications Limited.

Khandker, Shahidur, R., Douglas, F. Barnes & Hussain, Samad, H. (2009). Welfare Impacts of Rural Electrification: A Case Study from Bangladesh. The World Bank Development Research Group Sustainable Rural and Urban Development Team.

Khraim, S., Adlezbibla, U. & Martinez F. (2021). Factors affecting environmental health. Journal of Health Sciences, 3:1921-1928.

Kuponiyi, U. (2008). Fiscal federalism and revenue allocation. The poverty of the Niger Delta. Selected papers for the 1999 annual conference of the Nigerian Economic Society on Fiscal Federalism and Nigeria Economic Development.

Lounge, S. & Omozymo, F. (2012). Environmental protection management and control of oil pollution in Kenya. Journal of Social Sciences, 12:42-51.

Masogunle, A. C. (1980). The development process: A spatial perspective. Monograph on development policy and self-reliance for developing countries.

Mugambi, M. M. (2016). Social media and teenage pregnancy among students in secondary schools in Imenti. Mostly, sub-country, Mery, country Kenya. International Journal of Scientific Research and Management: 4, 4586-4606.

Nawir, D., Bakri, M. D., & Syarif, I. A. (2023). Central government role in road infrastructure development and economic growth in the form of future study: the case of Indonesia. City Territory and Architecture, 10(1). https://doi.org/10.1186/s40410-022-00188-9.

Obiam, Sampson & Amadi, Okechukwu. (2022). The Nigerian State and Development in the Niger Delta Region. World Journal of Advanced Research and Reviews. 14. 125-133. 10.30574/wjarr.2022.14.1.0296.

Ottong, J. E. (1986). Towards effective control of official corruption in Nigeria. Nigeria: Corruption and Development Odekuwe, F. (ed) Ibadan, University Press, 193-197.

Punching (2016) Deplorable Calabar-Itu Road worries IPMAN. [Photograoh]. https://punchng.com/deplorable-calabar-itu-road-worries-ipman/.

Sachs, J. (2015).The age of sustainable development: New York: Columbia Press.

ThisDay (2024). Motorists Decry Deplorable State of Federal Roads in Cross River. https://www.thisdaylive.com/index.php/2023/01/05/motorists-decry-deplorable-state-of-federal-roads-in-criver/#google_vignette.

Warr, P. (2005). Work, well-being and mental health, in Barling J., Kelloway, K. & Frone, M. (eds). Handbook of home stress. New York: Sage.