

Maintenance Culture of Road Infrastructure and Socio-Economic Development in Uyo Local Government Area, Akwa Ibom State, Nigeria

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Abstract

The focus of this study was on the maintenance culture of road infrastructure and the socio-economic development in Uyo Local Government Area, Akwa Ibom State, Nigeria. The study was guided by the assumptions of Talcott Parsons' Structural Functionalism Theory. The study adopted a descriptive survey design. The population of this study consisted of critical stakeholders which included eleven (11) Councilors, Chairman, Vice Chairman, Secretary and technocrats – Head of Local Government Service, Director of Finance, Director of Works, and Director of Environmental Health as key informants; and key workforce in AKROIMA and FERMA were part of the participants. The sample size for the study was 40 participants who were selected using purposive and snowballing non-probability sampling techniques. The study adopted observation, key informant interview (KII) and in-depth interview guide (IIG) as major instruments. The findings showed, among others, that maintenance culture is minimally felt in Uyo Local Government Area as a result of the slow response of the maintenance agencies to the deplorable roads in the area. Equally, prompt release of funds distorted by bureaucratic processes constituted a major hindrance to quick response which has affected the access to vital socio-economic institutions and marred the pace of socio-economic development in the study area. The study recommended stakeholders' concerted efforts through advocacy, support, and concern geared toward road maintenance for the development of social life and economic well-being.

Keywords: Maintenance, culture, road infrastructure, socio-economic development, Uyo Local Government.

Background/Problem

Road infrastructure in a country has been considered an important predictor of socio-economic development and prosperity. The availability of road infrastructure is capable of encouraging the growth of small and medium enterprises, as well as attracting investors (Liberty, et al, 2023). In Nigeria, roads are the dominant mode of transportation for passengers and vehicle owners, in which the need is growing rapidly. It is noticeable that most of the indigenous contractors do not do enough to ensure the sustainability of road infrastructure as it has been widely reported that roads are affected, in varying degrees, by premature deterioration. Nigeria is said to have gotten it right in the aspect of road ownership, responsibility and creation of road management agencies, yet the funding has been inadequate, from only one source which is the government. Whereas in developed economies, partnership, collaboration, delegated powers, volunteers, and corporate social responsibility have been employed to either create new roads or maintain the existing ones.

The types of maintenance activities carried out are more of the same in other climes, though the approach may differ. Nevertheless, the importance of road maintenance cannot be overemphasised because of its enormous contribution to the nation's regional integration and economic growth, social development, effective public administration and security. Additionally, maintenance sustains the quality and safety of the road condition close to the original design, and this minimizes road user costs, accident rate, poverty level and even reconstruction costs. However, delay in maintenance tantamounts to its reconstruction as it results in high direct and indirect costs. Yet, Sidiq (2019) reported that many countries, not only Nigeria, usually spend just about 20 to 50 per cent of the actual amount for road maintenance. However, according to World Bank reports, neglecting maintenance at any stage may result in spending three times or more on maintenance costs (Sidiq, 2019).

Successive governments in Nigeria have embarked on road construction and rehabilitation to boost economic development. However, many challenges, including poor maintenance culture remain unaddressed. The implication is that poorly maintained roads constrain mobility, significantly raise vehicle operating costs, high cost of transportation for passengers, high cost of commodities in the city, low cost of commodities in the rural settlement, increase accident rates and their associated human and property losses, poor property appreciation, and natural resources utilization, poverty, poor health, illiteracy in rural communities, and rural-urban migration, among others.

In Akwa Ibom State, many roads are concentrated in the urban areas and many of these roads are not without potholes, while some are completely dilapidated and abandoned for obvious reasons. Roads linking the rural areas are also inaccessible due to poor road network and maintenance. This situation hinders the utilization of natural resources in those areas.

In Uyo Local Government Area which is the study site, internal shuttling is becoming a major problem to residents, passengers, motorists and other road users. This is because some portions of roads have been taken over by ravine encroachments; many are having issues with potholes, while many adjoining streets are without any intervention. The situation has become so pathetic that many residents and students alike are finding it difficult to survive. They accused the Akwa Ibom Roads Infrastructure Maintenance Agency (AKRIOMA) of not doing anything to salvage the deplorable roads. Furthermore, many residents of Uyo Local Government Area have taken bold steps to draw the attention of the Akwa Ibom State

Government to address the situation; while other residents have packed out of some streets from both businesses and residential apartments daily, especially during the rainy season. No one passes through many of these streets when it rains. Most times, shops are flooded and owners suffer so much loss especially if it happens at night. Most of the roads in Uyo Sub-Urban and the adjoining streets are bad. Car owners are not left out of the suffering as flood often spoil their cars and damage the engine even when they park inside the compound. Churches along these streets are also affected as members miss church services, especially when it rains because the roads are inaccessible.

Some of the affected roads within the Uyo Capital City include Nelson Mandela Street, Ikot Udoro Street, Ebong Essien Street, Aka Itiam Street, Udo Umana Street, Kelvin Street, Ukana Offot Road, Calabar Street, Uwa Street, Michael Abraham Street, Udo Otung Uboh Street, Udoette Street amongst many others. Therefore, to lessen the problem of poor road network in Akwa Ibom State, the Akwa Ibom State Government established the Akwa Ibom Road Infrastructure Maintenance Agency (AKROIMA) under the supervision of the Akwa Ibom State Ministry of Works and Fire Service to handle road maintenance issues in the state. Beyond this, to make the road passable, youth, community leaders and organizations (for example, Churches) have contributed financially to mobilise people to fill up the potholes, yet, the roads are still not accessible. There have been no studies to open up concerns for deplorable roads and their users in the affected areas. The study intends to raise such concerns and to fill any gap that may exist using the findings and recommendations.

Objectives of the Study

The main aim of this study was to examine the maintenance culture of road infrastructure and socio-economic development in Uyo Local Government Area, Akwa Ibom State, Nigeria. The specific objectives were to:

- i. Ascertain the effect of maintenance culture of road infrastructure on access to socio-economic services in Uyo Local Government Area;
- ii. Examine the effect of the maintenance culture of road infrastructure on transportation business in Uyo Local Government Area;
- iii. Determine the effect of maintenance culture of road infrastructure on natural resource utilization in Uyo Local Government Area.

Research Questions

The following research questions guided the study:

- i. How does the maintenance culture of road infrastructure affect access to socio-economic services
- ii. How does the maintenance culture of road infrastructure affect transportation business?
- iii. How does the maintenance of road infrastructure affect natural resources utilization?

Conceptual Framework

Maintenance

This is the habit of regularly and consistently keeping a building, machine, facilities, equipment, infrastructures, roads etc., in good functional or working condition. Scholars (Suwaibatul-Islamiah et al., 2012) posited that maintenance culture is the values, way of

thinking, behaviour, perception and underlying assumptions of any person, group or society that considers maintenance as a matter of great concern. Stephen (2012) on his own defined maintenance as the process of protecting or preserving someone or something, or the process of keeping something in good condition.

Beyond this, attaining sustainable infrastructural development by successive governments and cultivating or practising maintenance or management is essential in this direction. This explains why the British Standard Institute in 1974 cited in Mobley (2004) considered maintenance as the combination of technical and administrative actions taken to preserve or protect a structure (road), system or equipment to function properly.

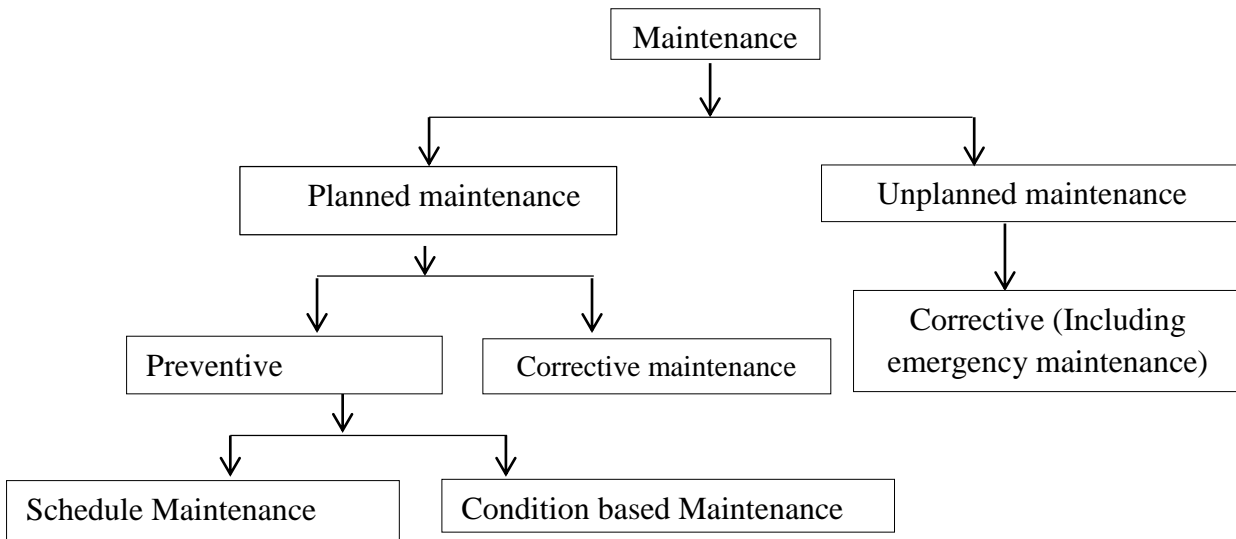
However, there is a maintenance taxonomy which needs to be mentioned:

Planned Maintenance – This is the maintenance organized and carried out with foresight or thought control and the use of records to a predetermined plan.

Unplanned maintenance – This is maintenance carried out to no predetermined plan. It involves the restoration of suddenly defective facilities to their functional states.

Preventive maintenance – This involves or is carried out at predetermined intervals or corresponding to research criteria and intended to reduce the probability of failure or the performance degradation of a structure (road) or an item/equipment. Preventive maintenance is an action performed as a time-based schedule that could detect, or mitigate degradation of a structure or road network system to sustain or extend its useful life through controlling degradation to an acceptable level. The sketch below corresponds to the thought of Mobley (2004).

Fig I: Time-Based Template for Maintenance



Source: British Standard Institution (1974) cited in Mobley (2004).

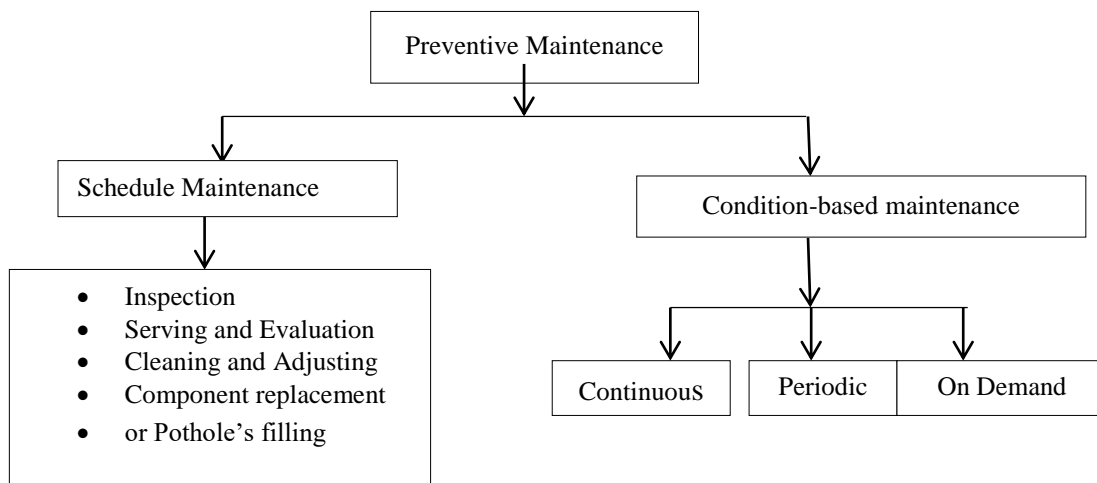
Corrective maintenance – This maintenance is carried out after a failure has occurred and is intended to restore an item or structure to a state in which it can perform (be useful) in its required function. Mobley (2004) noted that corrective maintenance is very simple and straightforward. For Mobley, the strategy entails, 'fix it when it breaks or is out of use'.

Emergency maintenance – This maintenance strategy is necessary to undertake immediately after the failure occurs, to avoid serious consequences. This is also seen as "day-to-day" maintenance, resulting from such incidences as pot-holes, truck fall, flood etc. leading to damages on the roads.

Scheduled maintenance – This entails preventive maintenance carried out to a predetermined, say, interval of time, number of operations or rule age.

Condition-based maintenance – Preventive maintenance is also rooted in condition-based maintenance. This strategy is usually initiated as a result of knowledge of the condition of the structure or item from routine or continuous monitoring.

Fig II: Preventive Maintenance



Source: Mobley (2004).

Maintenance culture is the values, way of thinking, behaviour, and perception about how a property can be managed for longevity or sustained life span. This culture is usually derived or learned through a person or institution making maintenance a natural daily practice that can be followed and emulated by others (Florence, 2011). The concept of maintenance culture is the internal environment between management and staff in ensuring effective maintenance through the sharing of ideas, beliefs, and values of each member of an organization (Omotehinshe et al., 2015).

Causes of Poor Maintenance Culture

Lawal & Oluwatoyin (2011) identified factors that promote poor maintenance culture for Nigerian roads as follows:

- i. **Corruption:** This is an effort to secure wealth or power through illegal means or private gain at public expense; or a misuse of public power for private benefit (Atakpa & Akpan, 2023). Ogundiya (2009) explains that corruption is the exploitation of public positions, resources and power for private gain. For instance, a sitting government may award a contract for a particular road project without any known or unknown mechanism for completion, only to abandon the road project at the end of the tenure. Ogundiya (2009) still argued that successive governments would not maintain or consolidate the construction or maintenance of the existing road, but award new contracts to settle party faithful and for "kickbacks".

- ii. **Poor Leadership:** Leadership is the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives (Obayelu, 2007). Road infrastructural maintenance could be seen as leadership where the leader is committed to making public and collective infrastructure beneficial to everyone, he/she would intensify efforts to create and maintain public accountability of stewardship. But where the interest of the public is not paramount, the creation or maintenance of public roads may only exist on paper as policy decisions, without providing the necessary service to the public.
- iii. **Attitudinal Problem:** It has been observed that Nigerian's attitude towards government property, especially public office holders may be seen as lacking maintenance culture. Scholars (Peter, 1977 in Omotchinshe, 2015) noted that public office holders hardly rehabilitate their official buildings or facilities until such assets stand the danger of risking the lives of the public. This argument may stem from the fact that many dilapidated or deplorable roads in Nigeria have been budgeted and funds released for that purpose, but the funds ended up in the pockets or bank accounts of public assets managers. This has led to what is currently on the lips of social analysts as "Stomach Infrastructure". Nonchalant, selfish gains and abuse of public trust, noted Omotehinshe (2015) had compelled many public officeholders to endanger their cars, lives and Nigerians at large by refusing to fix public goods for the public interest.
- iv. **Lack of Policy:** Obayelu (2007) reported that public and private facilities are in a total state of depletion in Nigeria because of ineffective implementation of policy for maintenance. Public policy is a law, regulation, procedure, administrative action, incentive or voluntary practice of government at all levels and other institutions. For instance, it is public policy that brought about FERMA – Federal Road Maintenance Agency, and AKROIMA – Akwa Ibom Road and other infrastructural maintenance agencies for both the Federal and Akwa Ibom State respectively. Why then do we have many federal and state roads in Akwa Ibom not fixed? This question may lead to such responses as:
 - i. It may be that the purpose budgetary allocation has usually been diverted.
 - ii. It may be that the agencies are not directed to give account of their stewardship.
 - iii. It could be that these agencies are the channels where government treasures are looted.
 - iv. It could also be that the agencies are inefficient or lack equipment or technical personnel.

Maintenance culture is an inbuilt mechanism for national development which cannot be ignored. Moreover, it is also a measure of leadership accountability and progress. Yukl (2006) reported that policy is driven by leadership which is seen as the shifting of one's vision to high sights, the raising of man's performance to higher standards, and the building of man's personality beyond its normal limitations as policy outcomes. On the strength of this, it can be inferred that policy and leadership could produce a sustainable maintenance culture or development.

Roads Infrastructure

Infrastructure refers to the essential physical and organizational structures that enable a civilization to function, such as industries, buildings, roads, bridges, health care, and

governance (Sullivan & Sheffrin, 2003). Road infrastructure is the development of road networks, highways, lanes, pavement, designated signs, stop or traffic lights, gutters, active surface or underground tunnels or drainage systems (Sullivan & Sheffrin, 2013). Infrastructure, therefore, can then be seen as a collection of interconnected structural elements that create a framework for development sustainability. For instance, bad/poor road systems constitute bottlenecks to the flow of goods, services, vehicular movement and human beings.

In Nigerian, there are common experiences such as inadequate road shoulders, uneven lanes, uneven pavement, incorrectly designated signs, faulty stop lights, construction incompetence, lack of maintenance and prompt attention to potholes at strategic locations, inconsistency roadblocks and barricades by security agencies and packed trucks and lorries. These are the bane of free usage of roads for the safe movement of goods, services and human beings. These occurrences have been replicated in many states in south-south Nigeria and Uyo in Akwa Ibom State in particular. Consequent to this, the pace of socio-economic development in Uyo has slowed down.

It is important to note that investment in roads in any economy attracts huge financial investment. There is always uncertainty and scarcity of available funds for road infrastructural investment and competing priorities which present challenges to governments' road infrastructure planning and delivery. It is not a fruitless effort to note that the need for greater road infrastructure investment is clear. Beyond this, there is a need to sustainably manage such investments. Akwa Ibom State and indeed Uyo Local Government's success in road infrastructure provision will be measured not by the quantum of funds invested, but by how road infrastructure contributes to the achievement of its economic, social, and environmental objectives. In support of these views, Baro (2019) pointed out that road infrastructure investment should be considered as a means of economic development. This is because road infrastructure is a form of transport infrastructure; hence it is a means to an end.

A new road infrastructure fully equipped with road fittings and installations may be very beneficial if it is located where it will be highly economical. This implies that road infrastructure can contribute immensely to socio-economic demands when constructed in industrial, commercial, and emerging towns and cities as in Uyo Local Government Area and other state capitals.

Socio-Economic Development

The word development can be considered as a change or transformation into a better state of something as well as an improved quality of life (Dabara et al., 2012). Indications such as infant and maternal mortality rates, shifts in social status, employment opportunity; life expectancy; and decrease in fertility; housing; water supply; nutrition and education, given the level of socio-infrastructure development, would improve the well-being of the citizens. In other words, development is an attempt at improving the condition of human existence. This implies:

- i. Improvement in the material well-being of citizens such that the future is secured;
- ii. Achievement of reasonable self-sustaining growth which facilitates and enhances industrial and technical progress in the interest of the people.
- iii. Not only economic growth but also some notions of equitable distribution, provision of health care, education, housing, road network and other essential services all to improve the individual and collective quality of life.
- iv. The provision of infrastructural facilities and amenities for mutual interactions and exchange are the prerequisites for socio-economic development.

Economic development on the other hand and in particular could be seen as an effort to improve the economic well-being and quality of life for a community, by creating or retaining jobs and supporting or growing incomes and other economic opportunities (Onyekwere, 2016). This notion has confirmed that there is a difference between social development and economic

growth. Economic growth, therefore, is an increase in jobs and income in the community on one hand and the expansion of economic activity on the other. Understanding economic growth in this context allows seeing economic development as encompassing job and income growth, and sustainable increase in the productivity of individuals, businesses and resources which help in the improvement of quality of life through employment opportunities (Onyekwere, 2016).

However, Onyekwere (2016) quoting Salmon Valley Business and Innovation Centre (SVBIC) noted that economic development is driven by three broad areas:

- i. Policies that governments undertake to meet broad economic objectives such as price stability, high employment, expanded tax base, and sustainable growth. These efforts, SVBIC noted, are money and fiscal policies, regulation of financial institutions, trade, and tax reduction policies.
- ii. Policies and programmes to provide infrastructure and services such as highways, parks, housing, crime prevention, educational programmes and projects.
- iii. Policies and programmes explicitly directed at job creation and retention through specific efforts in business finance, marketing neighbourhood development, small business start-ups, business retention, expansion, technology, innovation, workforce training and retraining, real estate development and sustainability, tax holiday, and reduction in interest rate.

Arising from the above processes and activities, the connecting social factor is road infrastructure development as a correlate.

Maintenance Culture of Roads Infrastructure and Access to Socio-Economic Services

Society exists as a self-sustaining entity. This implies that society plays host to socio-economic organizations, e.g. education (schools, research centres, etc.); health institutions, express in primary health care (health centres, pharmacies, retail drug outlets etc), secondary health care (general hospitals), and tertiary health care (Specialist and teaching hospitals); industrial organizations (factories, corporate headquarters, warehouses); financial institutions (commercial banks, central bank, cooperative banks, merchant banks, bureau de change etc.); marketing outlets (shopping mall, market stalls, open-air market etc.); recreation and entertainment facilities etc. These organizations and many more, are connected by road networks. Onyinloye et al. (2022) noted that road infrastructure and its maintenance are critical to the population's socioeconomic well-being and the growth of the economy in particular. Beyond this, Ekong (2010) noted that the effective utilization of social as well as economic resources by citizens of a country or indigenes of a given community (rural or urban) is a function of a good road network.

Scholars (Sidiq, 2019; Liberty et al., 2023) argued that in many small towns, road infrastructure is grossly inadequate; some are in a poor state, while others are impassable, leading to underutilization of public, social, and economic utilities. Adeniran (2016) observed that the terrible condition of roads is exacerbated by government agencies' slow response to repairs, restoration, and maintenance attention. As a result, Adesanya reasoned that poor road infrastructure in small towns, not only leads to a lack of interregional, inter-community or inter-town economic activity, but scarcity of essential items or services. Whereas good roads within and around social services, give access to the utilization and sustainability of such services or public utilities. Small towns in Uyo Local Government Area provide a handy example. Ekong (2010) noted that part of the push and pull forces that enhance migration is a deplorable state or no roads at one end, and good roads at the other end. In other words, the migration source may be inflicted with bad or poor road networks, while the destination may have a good road network which attracts the migrants. Nahima (2008) noted that poor road network has denied speedy access to airports, hospitals, schools etc. by many residents of small towns such as those

in Uyo Local Government Area. The loss of lives and goods on deplorable roads is enormous and has pushed survivors away from further investment in small towns.

Beyond this, Nahiman (2008) again noted that the poor maintenance culture of road infrastructure has also affected facilities maintenance in public institutions. For instance, infrastructure such as internal roads, and housing infrastructure, within such public facilities as airports, hospitals, Port Authorities, schools etc. lack efficient management and maintenance that would help ensure effective and efficient functioning to foster national development. In line with the above argument, Florence (2011) mentioned that the majority of towns in state capitals have insufficient and poorly maintained road infrastructure. According to her, the state of rural roads is worse, which pushes the rural dwellers away from interacting constantly with the cities. It has also denied them access to and utilization of public or social facilities or services. Hence, the areas become close and isolated from major urban centres or cities where referrals are usually directed. Whereas, a well-integrated rural-urban transportation infrastructure certainly would ensure cost-effective, safe, and timely movement of people, exchange of goods and services, agricultural inputs, food, water, and other essential commodities and materials in an inter-connecting basis across these towns including Uyo Local Government Area.

Maintenance Culture of Roads Infrastructure and Transport Business

It is of wider support and acceptance that road maintenance infrastructure is a bridge to the development of land transportation. Adeniran (2016) explains that the transport industry is a system that ensures the successful movement of passengers, cargo, and mail from one point to another point through a good road network. In this regard, the transportation industry comprises, air, water, rail, pipeline, and cable dovetail into road systems where goods and services are distributed to the final consumers (road is the principal among the components). Against this background, the industry is not a homogenous body of its own but made of different interacting units or subsystems working interrelatedly to ensure the performance and the achievement of its objectives. The subsystems are, according to Adeniran (2016):

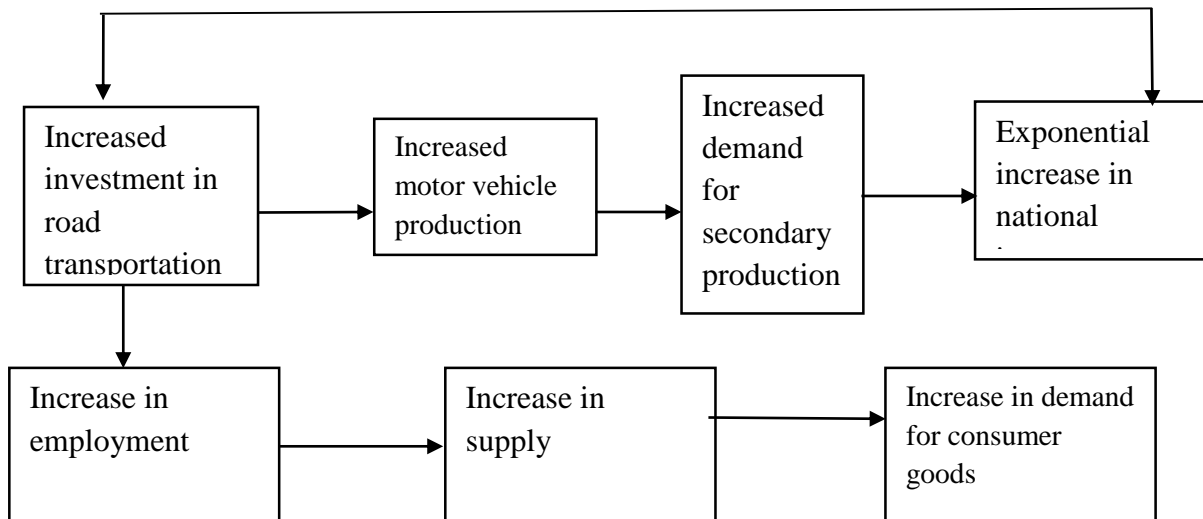
1. The way: This is the route where the vehicle plies. It can be national (waterway or airway) or artificial (paved roadways, railway and cable); the paved road in this context has the power of finality and destination;
2. The vehicle: This is the carrying capacity for different transport modes such as motor cars for the road, aircraft for air, ships for water, and pipes or tubes for pipelines and each has different sizes and classes;
3. The terminal: This is the point where there is access to specialized ways, it is used for interchange, fragmentation and consolidation of traffic for onward movement. They include bus stops, airports, runways, seaports, depots, motor parks, railway and stations; and
4. The motive power: This is the propeller that moves the entire vehicle e.g. engine, tires, fuel and other components.

The above explanation is to lead us to a better understanding of the demands of an effective road transport system. This implies that the road transport system must comprise the roadway which includes infrastructures and fittings, the motor vehicle which is the carrying capacity on the road, the bus terminal and the motive power for the vehicle. Beyond this, for the road transport business to be sustained, road maintenance must be prioritized in terms of budget allocation and a well-equipped maintenance agency (Sidiq, 2019). This author still, presents the effects of road transport investment on economic development thus:

Road transport investment here mainly refers to road infrastructure investment. The construction and operation of road infrastructure have an important impact on economic development. Many economists have been engaged in the field and have pointed out two types of effects of road transport infrastructure on economic development – forward-induced effects of road construction on economic growth, and road construction follow-up ripple effects on economic growth.

In light of the above remarks, a forward-induced effect is seen in building and maintaining road transport infrastructure. This effect could boost economic development. Sidiq, (2019) argued that road construction or maintenance projects lead to road transport infrastructure which is seen to produce demand for factors of production. There is the potency and tendency for increment in the investment of factor markets. The prosperity in the factor market will stimulate consumer market investment. In this sphere of economic dramatization, the construction of road transport infrastructure will stimulate much investment, and increase in demand, supply and employment within the economic systems.

Fig III: Forward-induced Effects of Road Construction on Economic Growth



Source: Sidiq (2019)

Similarly, road construction follow-up ripple effects on economic growth in the words of Peng (2012), Adeniran (2016), and Sidiq (2019) would mean the direct and indirect contributions of road transport infrastructure built on economic development once in operational state. The workability of direct and indirect contributions can be seen in the figure iv below: (a – b).

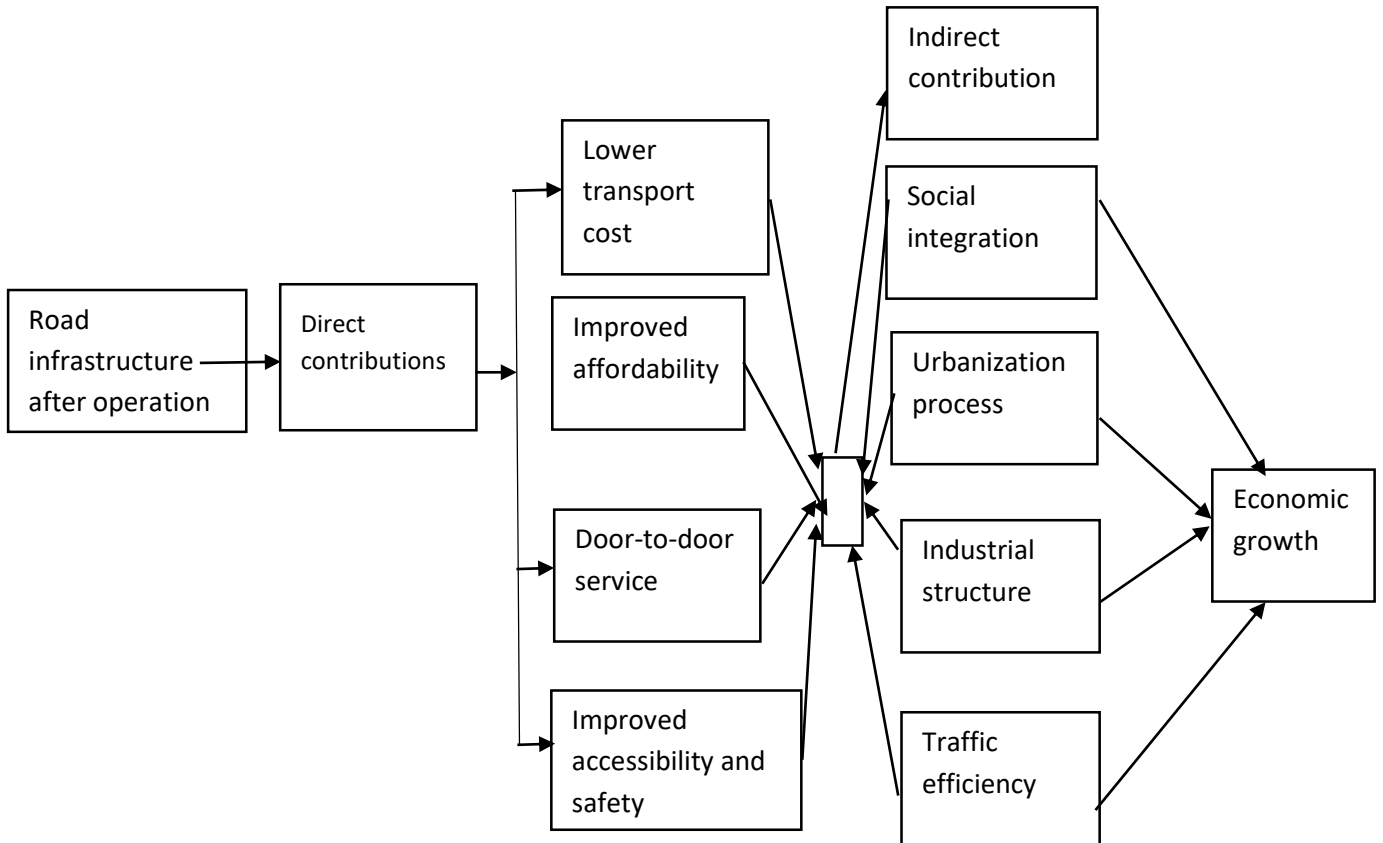
b. Direct contributions

1. Lowering transportation costs, providing door-to-door services;
2. Improvement of accessibility and safety;
3. Peng (2012) noted that new infrastructure put into operation can alleviate the transport pressure, and reduce crowded roadways, transportation twine and costs.
4. New transportation modes/roads make the existing transportation network more dense and smoother, accessibility, safety, speed of vehicles, and flexibility of route choices.

c. Indirect Contributions

1. Improved investment environments;
2. Organized industrial structure;
3. Accelerated urbanization process; and
4. Economic traffic belt.

Fig IV: Road construction and maintenance follow-up ripple effects on economic growth



Source: Sidiq (2019)

In line with the above Fig. iv, Peng (2012) observed that road construction and maintenance brings about transportation investment which in turn promotes economic growth, however, there are two consequences;

- i. Investment multiplier effect and associated industrial effect in this case, transportation infrastructure investment would produce new elements of demand pulling together related industrial development to promote economic growth.
- ii. Direct economic effect – transportation infrastructure built and put into operation would; Alleviate the pressure of transport; Reduce congestion; Save transport time; Reduce transportation costs; and Increase transportation income

The above economic effects are common in the developed economies. For instance, in Japan, transport infrastructure investment (road) accounts for 5.1 % of the total investment, resulting in 3.1% productivity growth per year. In the US as well, 0.3% of public infrastructure investment is used in transport infrastructure with an average annual 0.6 productivity growth. This implies that there are conscious or deliberate efforts in spending public funds on roads

and transportation infrastructure to stimulate economy leading to economic development in these countries (Blum, 1982; Biehl, 1986; Aschauer, 1989,1990, all in Sidiq, 2019).

Maintenance Culture of Roads Infrastructure and Utilization of Natural Resources

Maintenance culture is believed to be a face-lifting or upgrading of roads for commuters or motorists for the exchange of goods and services. Beyond this fact, motorable roads are also access roads to the domain of natural resources. Liberty et al. (2013) acknowledged that the utilization of natural resources is an essential condition of human existence, motivated by motorable roads. Therefore, motorable road infrastructure is not only for aesthetic considerations but access to the rich zone of natural resources.

It is obvious in this context that, natural resources' utilization is also road utilization because without access roads, exploration, exploitation and utilization of natural resources cannot be possible. Liberty et al. (2013) still, noted that proper utilization, evaluation, and accountability of natural resources, motivated by access roads infrastructure could guarantee robust development planning. Liberty and other scholars stressed that maximizing the value of natural resources for sustained growth and development and avoiding the resources curse or wastage, requires policies that drive revenue management, and maintenance of road infrastructure for access and delivery of explored and exploited resources. Poor resource management would include failure to manage or maintain our roads (renewable resources) on a sustained basis.

Natural resource utilization can best be understood in the following way:

1. Land: The use of land in various ways – this includes building shelters for Schools, hospitals, airports, football fields, markets, habitation, recreational centres, tourist sites, office accommodation etc. The basis of utilizing land as a natural resource is access roads;
2. Water: Water can be utilized for irrigation, domestic use, fountains for aesthetics, fishing, cruising etc. This can be made possible through access roads to its source or sources;
3. Soil: This can be used for agriculture and minerals exploitation etc. Effective utilization could be the function of road utilization as well;
4. Plants, animals, and the atmosphere within the ecosystem are parts of the natural resources endowment for human comfort.

The essence of utilization and managing natural resource endowment is to improve the quality of human life in the present as well as in the future. To achieve this, Mayomi & Omachoko (2017) noted that it must be accompanied by good road network and maintenance for access, utilization and management. According to them, natural resource utilization is more crucial than merely having them. The reason is that it directly affects human existence, such as economic, legal, social, and aesthetic values. Beyond this, energy utilization affects all aspects of modern life. Ushie (2013) mentioned that known natural resources for regular utilization by mankind are – Crude oil, Natural gas, Shale oil, Coal, Tar, Sands, Uranium and Deuterium. According to Ushie (2013), these resources are utilized for building, transportation, industry, power etc., with the need to be conveyed through heavy-duty trucks to the final users. In the management of these resources, access roads must be managed or maintained for higher productivity and development.

Theoretical Framework

The study adopted the Functionalism of Talcott Parsons propounded in 1872. The major tenets of this theory as indicated in Ekong (2010) are:

1. Society is like a living organism with each part being indispensable to the survival of the system. In other words, each part or structure of the system has and performs some functions.
2. Society is always striving to maintain its stability or equilibrium through constant exchanges with its specialized structures (institutions) and substructures.
3. Society as a social system, has 4 basic problems or functional imperatives (AGIL):
 - i. Adaptation to environment
 - ii. Goal attainment
 - iii. Integration
 - iv. Latency or pattern maintenance

These are problems society is contending with Parsons in Ekong (2010) noted that to solve these problems and persist, four (4) major structural features of the economy, polity, family, community and cultural organizations (agencies) must be equipped. In applying the theory to the study, these imperatives are shrouded in social institutions. For instance, adaptation to the environment would mean, basic infrastructure, including roads, which must be constructed and maintained for mobility and adaption to economic, political, and community needs. Equally, goal attainment and pattern maintenance, such as roads, economic, family, community, and cultural organizations, among others with their facilities, must be tied to the norms and values of regular or recurrent maintenance culture as the political power budgeted and release funds for that purpose

Materials and Method

Akwa Ibom State was created out of the Cross River State in 1987 and Uyo became both Local Government Headquarters and State Capital. This new status generated deliberate efforts from these two levels of government to provide widespread social and infrastructural facilities to take care of the need for mass movement of people into the town in search of one opportunity or the other. At this level, maintenance of road infrastructure became crucial to facilitate commercial activities, access to utilization of social services and other human efforts. Uyo Local Government Area has four (4) political clans (Oku, Offot, Ikono and Etoi Clans) and eleven (11) wards (Etoi I, Etoi II, Ikono I, Ikono II, Offot I, Offot II, Oku I, Oku II, Uyo Urban I, Uyo Urban II and Uyo Urban III).

The descriptive survey design was employed to guide the study. This design entails information generation from the respondents using the representative of the population through various research instruments. The population of this study consist of critical stakeholders which include eleven (11) Councilors in the eleven (11) political wards, the Chairman, Vice Chairman, Secretary, and four (4) technocrats- Head of Local Government Service, Director of Finance, Director of Works, and Director of Environmental Health as key informants (the study believes that the political class represents the people, while the technocrats are part of the management of the Local Government Council) in the study area; key workforce in AKROIMA (11) and FERMA (11) were part of the participants.

Therefore, the sample size for the study was 40 participants. The study samples were selected using purposive and snowballing non-probability sampling techniques. The study adopted observation, Key Informant Interview (KII) and in-depth interview guide (IIG) as major instruments. Observation as it was, helped to ascertain dilapidated roads, and other roads

that were not given adequate attention; Key Informant Interviews were critical in eliciting information about the effects of maintenance culture of road infrastructure on access to socio-economic services; transportation business; and natural resource utilization while structured and unstructured interview guide were used to generate primary information as well, to validate primary data generated from observation and key informants in the exercise. This triangulation or multiple instruments approach is a way of reaching other informants that were not contemplated in the study. The data for the study were analyzed using descriptive, thematic, and content analysis approaches to generate findings and recommendations to promote socio-economic growth and development in Uyo Local Government Area, Akwa Ibom State.

Results and Discussion of Findings

Table 1: Maintenance Culture of Roads Infrastructure and Access to Socio-Economic Services (n = 40)

	Variable/Questions	Variable Conceptualization	Frequency/R esponses	Percentage (%)
A	Have you been involved in roads infrastructure maintenance in Uyo Local Government Area directly or indirectly?	• Indirectly	10	25
		• Directly	30	75
B	Does road infrastructure maintenance pave way for access to socio-economic services?	• Maximally	38	95
		• Minimally	2	5
C	How do you rate roads infrastructure maintenance in Uyo L.G.A?	• High	5	12.5
		• Low	35	87.5

Source: Field Survey (2023).

Table 1~A: This table revealed that 25 per cent of the participants were indirectly involved in the maintenance of road infrastructure by agencies at the State and Federal Levels (AKROIMA and FERMA). The results showed that 75 per cent of the participants were involved directly in road infrastructure maintenance.

Table 1~B: Again, this table revealed that road infrastructure maintenance has the potency to create access to socio-economic services (Banks, markets, Shopping malls, Football pits or playgrounds etc.) maximally, at least 95 per cent of the participants attest to this. While 5 per cent of them affirmed that it minimises access to socio-economic services minimally. The result implies that the majority of the participants thought that maintenance of road infrastructure relates maximally to access and utilization of socio-economic services.

Table 1~C: The table shows the views of the key informants (35 or 87.5%) of them who acknowledged the fact that roads infrastructure maintenance in Uyo Local Government Area is very low. This suggests that access to socio-economic services and natural resource utilization is low as well.

Table 3: Maintenance of Roads Infrastructure and Transportation Business (n = 40)

Variable/Questions	Variable Conceptualization	Frequency/Responses	Percentage (%)
A Do you think that road infrastructure maintenance has direct link with transport business?	<ul style="list-style-type: none"> • Good roads attract investment on transportation facilities 	25	62.5
	<ul style="list-style-type: none"> • Effective business development is the function of Good road network 	5	12.5
	<ul style="list-style-type: none"> • Roads and transport facilities are socio-economic infrastructure 	10	25
B In what ways does transport infrastructure promote business development	<ul style="list-style-type: none"> • Time management 	15	37.5
	<ul style="list-style-type: none"> • Speed of delivery • Evacuation of primary products 	10	25
C What are the challenges of sustaining roads maintenance for transport investment	<ul style="list-style-type: none"> • Insensitive nature of government 	20	50
	<ul style="list-style-type: none"> • Too many directives from the authority 	5	12.5
	<ul style="list-style-type: none"> • Use of low technology for the repairs of roads 	15	37.5

Source: Field Survey (2023).

Table 3~A shows 62.5 per cent of the participants agreed that good roads are the pills of investment in transportation facilities, 12.5 per cent of the participants accept the facts that an effective business environment and development is the function of a good road network, while 25 per cent noted in strong terms that roads and transport facilities (terminal, Bus stops, service stations etc.) are socio-economic infrastructure equally as land, capital, technology and managerial skills. The result indicates that road infrastructure maintenance has a direct link with transport business.

Table 3~B shows that good roads and other transportation infrastructure could enhance time management (37.5%); speedy service delivery (25%); and evacuation of primary products to the processing destination (37.5%). The result indicates that there is a relationship between road infrastructure maintenance and business development.

Table 3~C shows 50 per cent of participants arguing that the government's insensitive disposition towards bad roads is a major challenge: 12.5 per cent of the participants claimed too many directives and counter-directives have slowed down the pace of road maintenance; while 37.5 per cent claimed the use of low technology as one of the challenges. The result shows that there are various challenges militating against road maintenance in Akwa Ibom State.

Table 4: Maintenance of road infrastructure and natural resources utilization (n = 40)

Variable/Question	Variable Conceptualization	Frequency/ Response	Percentage (%)
A What are the natural resources that can be utilized adequately by the functionality of good or motorable roads	• Land	22	55
	• Water	6	15
	• Soil + stones + laterite	10	25
	• Plants	2	5
B Can you identify promoters of roads infrastructure maintenance that affect natural resources utilization?	• Commuters/community	32	80
	• Government	6	15
	• Civil society	2	5
C Who funds contract of road maintenance that drivers natural resource utilization	• Government	38	95
	• Private/individuals/ Sector	2	5
D What other functions do natural resource utilization plays in socio-economic development?	• Commercial purpose	25	62.5
	• Conversion to secondary uses	5	12.5
	• Stimulation of economic growth and development	10	25

Source: Field Survey (2023).

Table 4~A shows the responses of key informants to the type of natural resource utilization which include land (55%); water (15%); soil, stones, and laterites (25%); and plants (5%). The results show that effective road maintenance can facilitate the utilization of several natural resources.

Table 4~B - This table revealed that with 80 per cent of key informant assessment, commuters and affected communities are the promoters of road maintenance, while 15 per cent explained that the government also promotes when government functionaries frequent the area. The result shows that community members (Youth in focus) promote more, the need for road repairs as they occasionally fill the pothole with laterite and hard stones.

Table 4~C – This table revealed that the government is the principal financier of road infrastructure maintenance. Not less than 95 per cent of the participants agreed that the government at the Federal and state levels are involved through their accredited agents (AKROIMA and FERMA), though non-state actors may participate but not often. The results show that the government at all levels remain the key or principal maintenance agency.

Table 4~D – This table shows that natural resource utilization promotes commercial activities (62.5%); and the stimulation of economic growth and development (25%), while 12.5 per cent of the participants agreed that access to and utilization of natural resources facilitate the process of conversion from primary to secondary items. The results show that at all fronts, natural resource utilization is development-related.

Key Informants Interview (KII) Responses

Association between Roads Maintenance and Access to Socio-economic Services

Key Informant 1

There is a strong relationship between road infrastructure maintenance and the free flow of human movement, goods and services. Road network gives access to vital services such as banking, marketing, schooling, airports, health services, churches, mosques, factories, corporate headquarters of manufacturing industries, and other service-oriented activities. Without roads in good condition, patronage of both public and private goods cannot be maximized. Therefore, road maintenance or construction should be on the priority list of the government.

Key Informant 2

For me, roads and transportation infrastructure are key components of the socio-economic well-being of the people. For instance, good roads facilitate attendance at social events by either government or private persons. Whereas, there are some roads which are not motorable, or in a deplorable state such that human foot cannot access them. This could be caused by potholes etc., the danger would be, that inter-community connections are hampered, tenants would be discouraged from acquiring accommodation, and suppliers and distributors would be discouraged from accessing the area for business transactions. Good roads are the pride of business prosperity and economic development.

Key Informant 3

It is unfortunate that African and indeed Nigerian leaders do not set their priorities right. Otherwise key to economic development is road maintenance and transportation infrastructure. The movement of goods, human beings, and services is determined by a high level of mobility in terms of vehicular movement. In Europe and America, every ten years, road layers are replaced to make roads useable and accessible to vital services and economic activities, all in the bid to enhance national development.

Association between Road Infrastructure Maintenance and Transportation Business

Key Informant 4

Road maintenance is a cultural thing, not only roads but maintenance of equipment and facilities. Even in our homes, if we don't maintain our facilities, the life span of such facilities would be shortened. We should not stress the maintenance of our roads because it is the centre-piece or hubs of economic development. Everything is anchored on roads, without which everything is affected negatively. For instance, a farmer needs a road to transport or convey his farm produce, a manufacturer needs a road to transport finished goods, a fisherman needs a road to convey fish to the consumers, the hospitality industry needs a road to receive guests, tourists site needs access road to the site, in fact, everything, everything!

Key Informant 5

There is no gainsaying that road construction and maintenance would bring about huge investment in transportation, especially road transport systems. This is because, at the individual level, it gives employment and income, while at the societal level, it is a measure of stability because exchange relationships can be facilitated. Good roads help employees to facilitate bureaucracy which is value-added to development administration, as punctuality, rejection of truancy, and result-oriented public administration can be achieved.

Key Informant 6

Road infrastructure maintenance, even construction is a provider of aesthetic value for cities and communities. Therefore, the pride of any government is the power of cities and communities with strong infrastructure and facilities. In Europe in particular, government at all levels would protect their investment by protecting the roads, goods and services, and human movement through the land transportation system.

Key Informant 7

For me, many roads in Uyo Local Government Area are impassable. For instance, the Urua-Ekpa road has been for many years been avoided, until recently when efforts were made to take the water underground. Road users, residents, land owners, transporters, business owners, Churches etc. had long fled from the area. In the same vein, Atiku Road, Babangida Avenue are usually small rivers whenever there is heavy downpour. In these zones, many breakdown trucks, and personal, and business vehicles are usually predictable experiences. Consequently, transporters would as a matter of concern avoid those areas, while the passengers remain stranded.

Key Informant 8

It is observed that most of the equipment used for road maintenance of the state and national agencies is usually hired for direct labour. In this regard, poor equipment, poor work, and poor outcomes are the predictable characteristics. For instance, tricycles were to act as town drops and to be interior streets shuttles, because of poor road infrastructure and network, those tricycles shuttle around choice roads, while resisting other bad roads.

Association between Road Infrastructure Maintenance and Natural Resources Utilization

Key informant 9

One of the difficulties encountered by private sector investment, private-public partnership investment and Direct foreign investment in agro-allied industries is bad roads. This situation has hindered the penetration, access and utilization of natural resources. Access roads would give access to the utilization of those resources. For instance, land, granite, laterite, sand and minerals can only be utilized where there is road infrastructure for trucks, lorries, and other means of land transportation.

Key Informant 10

Akwa Ibom State Government in recent years has constructed housing estates in the interior parts of the 31 local government areas. Many of those mini-housing estates were ignored by the public or potential buyers because of the lack of access roads. This explains why efforts in development in the developing economies in general, and Nigeria in particular adopt snail speed.

Key Informant 11

Subsistence agriculture is endemic to the land tenure system. This is because rural areas operate as a closed system, roads are not open-up or graded by local government to access farmlands for the evacuation of farm produce. Consequently, subsistence crops and roots production are sustainable, while large and commercial production are not. The enlarged agricultural activities such as Operation Feed the Nation, (OFN); Green Revolution (GR); Agricultural Development

Project (ADP) etc. ended with the region or administration that implemented the policy. Interestingly, there is a correlation between road maintenance and natural resource utilization on one hand and socio-economic development on the other. This is because notable agro-allied industries can only thrive based on the level of access roads.

Other Key Informants

Collectively, other key informants explained that road infrastructure maintenance is the outcome of public policy implementation. Effective maintenance of roads suggests effective implementation of public policy. In recent times, there have been over-politicized measures in governance. For instance, when higher government functionaries want to visit a locality, political leaders will command the youth to fill every dead-trapped pothole and a dilapidated spot in the pretence that all is well. As soon as the visit is over, the road will return to the status quo. This is always seen as a demonstration of eye service, hypocrisy and dishonesty in governance. Ignoring public policy implementation on road maintenance suggests ignoring access to natural resource utilization.

Major Findings

The study adopted secondary sources of information, interview guides and key informant interviews (KII) where the following findings were revealed:

1. There exist public policies that establish the Akwa Ibom Roads Infrastructure Maintenance Agency (AKROIMA) and Federal Road Maintenance Agency (FERMA) from both the State and Federal Governments respectively (for state and Federal Roads).
2. There exists a strong or significant relationship between road maintenance and access to and patronage of socio-economic services. Investment in road transport infrastructure, and access and utilization of natural resources are the drivers of socio-economic development.
3. Road infrastructure maintenance and investment in the transportation business are the forces of social as well as economic development. These are made possible through time management, especially in the delivery of goods and services, primary products, and punctuality at work or business locations.
4. Funding of road infrastructure maintenance activities is entirely the responsibility of the government at all levels through budgeting allocation. The agencies are the government platforms for the implementation of public policy on road maintenance. Sometimes, the budgeted funds for road maintenance are diverted, or not released on time. When eventually released, direct labour syndrome would undermine technical and superior performance.
5. Most of the equipment is usually hired with a fee to carry out the repairs. The process of the release of funds and hiring of the equipment constitutes a hick-up for prompt attention to the trouble spot.
6. The challenges for road infrastructure maintenance are varied – the insensitive nature of government in the implementation of road maintenance policy. Again, lack of collective cry to the authorities or lack of advocacy have hindered the government's quick response.
7. Too many directives from the governing authorities and the use of low technology to handle road repairs constitute a major challenge to road maintenance.

Conclusion

Good roads around social, economic, and natural resources will attract investment in transportation infrastructure and facilitate utilization and patronage. The terrible condition of Nigeria's roads is exacerbated by government agencies' slow response to the repairs, restoration, and lack of maintenance culture. As a result, inter-regional, inter-community, or inter-town economic activities are discouraged, with scarcity of essential goods or services in some localities. Beyond this, the push and pull forces that enhance migration are the bad or no roads at one end, and good roads at the other end. This implies that the migration source may be under poor road conditions, while the destination may have a good road network to attract the migrants. However, the stakeholders (the Local Council, Akwa Ibom State Government, Federal Government, Community, AKROIMA and FERMA) must be prompt in their responses and make road maintenance a culture.

Recommendations

1. Local government council should be obligated to grade local roads annually if the tarring of these roads are not feasible. It must not be the State Government alone that is responsible for road construction, maintenance, and grading.
2. Advocacy and campaigns should be carried out intensively to draw all the concerned parties to the maintenance of roads to enhance the vocational and business lives of the people.
3. The annual Budget should not exclude road maintenance for any reason.
4. Well-meaning Uyo residents, indigenes and non-indigenes should come together through ethnic associations to support government efforts on road maintenance.
5. Good roads would necessarily attract investment in transport business and infrastructure; therefore, government, private sector, and individuals should come together or collaborate to address road challenges in Uyo local government area.
6. Various Clan Heads should intensify efforts, including the mounting of pressures on relevant authorities on the need to tar at least one or two roads annually in their domains.

References

- Adeniran, A. O. (2016). Impacts of the fourth industrial revolution on transportation in the developing nations. *International Educational Scientific Research Journal*, 2(11), 56-60.
- Atakpa, O. E. & Akpan, C. S. (2023). Corruption in public administration and national development in Nigeria. *Open Journal of Social Sciences* 11:120-34 <https://doi.org/10.423/jss.2023.116010>.
- British Standard Institution (1974). *Glossary of general terms used in maintenance organization*. London: Butterworth-Heinemann.
- Dabara, I. D., Okerie, A., Ankel, I. A. & Alabi, J. K. (2012). Evaluation of the relationships between urban infrastructure and flood disaster in Gombe Metropolis; *Journal of Sustainable Development*. 5(7), 137-148.
- Ekong, E. E. (2010). *An introduction to rural sociology*. Uyo: Dove Educational Publishers.
- Euchi, L. & Kallel, M. Y. (2021). Road infrastructure and national pride in major cities in Nigeria: global economic requisite. *Journal of Urban Development in West Africa*. 3(3): 15-26.
- Florence, F. A. (2011). An empirical analysis of asset replacement decisions and maintenance culture in some government organizations located in Ogbomoso and Ilorin Metropolis as case study. *Journal of Management and Society*, 1(3), 1-9.
- Lawal, T. & Oluwatoyin, A. (2011). National development in Nigeria: issues, challenges and prospects. *Journal of Public Administration and Policy Research*. 3(9), 237-241.
- Liberty, J. T., Ugwushiwu, B. O., Basse, G. I. & Eke, V. N. (2013). Effects of natural resources utilization on the ecosystem and its remedies in Nigeria. <https://www.ijser.org/paper/Effects-of-Natural-Resources-Utilization-on-the-Ecosystem-and-Its-Remedies-in-Nigeria.html> (Retrieved on 30th November, 2023).
- Mayomi, A. O. & Omachoko, A. (2017). Research management as panacea for sustainable national economic Development and Unity, *International Journal of Scientific and Technology Research*. 6(1), 160-164.
- Mobley, K. R. (2004). *Maintenance fundamentals*. Saints-Town: Elsevier Inc.
- Nahima, A. N. (2008). Poor aircraft maintenance hinders aviation safety. *Daily Trust*, Pp – 10-12.
- Obayelu, A. E. (2007). Effects of corruption and economic reforms on economic growth and development: lessons from Nigeria. Paper Presented at African Economic Conference, Adis-Ababa.
- Ogundiya, I. S. (2009). Political corruption in Nigeria: theoretical perspectives and some explanations. *The Anthropologist*, 11(4), 281-292.
- Omotehinshe, O. J., Dabara, I. D. & Abdulazeez, H. O. (2015). Design inadequacies and the maintenance of University Buildings in Ile Ife Nigeria. *Journal of Environment and Earth Science* 5(2), 175-187.
- Onyekwere, B. A. (2016). Economic growth and development in Nigeria. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 6(3), 32-39.
- Onyiloye, G. O., Umaru, F. E., Ahmed, I. S., Ayinla, A. O., Onyiloye, B. A. and Akinwumi, O. D. (2022). Road infrastructure decay and insecurity in Nigeria. *Journal of Research in Humanities and Social Science* 10(7), 1-7.
- Peng, I. (2012). Social and political economy of care in Japan and South Korea. *International Journal of Sociology and Social Policy*, 32 (11/12), 636-649.
- Sidiq, B. O. (2019). Significance of road infrastructure on economic sustainability. *American International Journal of Multidisciplinary Scientific Research*, 5(4), 1-9.
- Stephen, L. (2012). Building services maintenance: the forgotten discipline, Aha-Management Publications www.aha.com.au/Genergyi.htm.

- Sullivan, A. & Sheffrin, M. S. (2003). *Economics: principles in action*. Upper Saddle River, New Jersey: Pearson Prentice Hall.
- Suwaibatul-Islamiah, A.S., Abdul-Hakim, M., Syazwina, F. A. S. & Eizzatul, A. S. (2012). An overview development of maintenance culture. Proceedings from 3rd International Conference on Business and Economic Research (Pp. 2206-2217).
- Ushie, V. (2013). The management and use of natural resources and their potential for economic and social development in the Mediterranean. A Working Paper, 1329, Istituto Affari Internazionali.
- Yukl, G. (2006). *Leadership in organizations* (6th ed.). New York: Pearson-Prentice Hall.