



## Exploring the relationship between infrastructural development and socioeconomic well-being in rural areas: Evidence from Bakassi, Cross River State, Nigeria

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### ABSTRACT

The relationship between infrastructural development and the socioeconomic well-being raises interest in rural areas. It specifically examines the relationship between road construction, potable water supply, and the socioeconomic well-being of rural dwellers in the Bakassi Local Government Area of Cross River State, Nigeria. The study design is cross-sectional, using quantitative and qualitative data from 420 rural respondents, with a multi-stage sampling technique. The descriptive statistics such as percentages and frequency tables, and Chi square was used to test the significance of the relationship between variables. All the respondents agreed that there is a significant relationship between road construction (68.8%), potable water supply (41.0%) and the socioeconomic well-being of rural dwellers. The study concludes that there is a significant relationship between infrastructural development and the socioeconomic well-being of rural dwellers. Thus, since the construction of roads has become a viable approach to establishing other sectors of the economy, governments at all levels should be largely involved in the provision of good and durable roads and the rehabilitation of old ones, especially in linking villages, towns, and communities to strengthen economic activities.

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### INTRODUCTION

For a society to have a better quality of life, the quantity of infrastructure it provides to its residents must be taken into consideration. A society is considered to be functioning, stable, and progressing if it provides essential services to the majority of its citizens in a way that allows them to use them with the fewest restrictions. Both in developed and developing countries, it is evident that proper planning, implementation, and maintenance of development infrastructures contribute significantly to

an increased level of productivity, economic growth, and social well-being of beneficiaries (Mohapatra & Chandrasekhar, 2007; Mujumule, 2016; Usman et al., 2019). A government that prioritises infrastructure raises production facilities' level, reduces production costs, as well as creates job opportunities (Mujumule, 2016; Ovharhe et al., 2020; Omang et al., 2022). On the other hand, the absence of infrastructure is a major impediment to sustainable development, thereby aggravating the already worrisome poverty level (Ofem et al., 2021; Ongbali et al., 2021; Rao & Srinivasu, 2013; Sahoo et al., 2010). Basic

infrastructural facilities such as access roads, clean water supply, health and educational facilities, as well as communication, are the standards for measuring the well-being of people in modern society, especially those in rural areas (Abdullahi et al., 2016; Ukwai & Okpa, 2017; Ebewore, 2021; Yusoff et al., 2011).

Satish (2007) observed that the provision of rural infrastructure is crucial for agriculture, agro-industries, and the overall economic development of rural areas. He, however, noted that infrastructure projects in rural areas require huge investments, long gestation periods, a high incremental capital-output ratio, high risk, and a low rate of return on investment, compared to output ratios in urban areas. Adequate infrastructure raises productivity and lowers production costs, but it has to expand fast enough to accommodate growth. While the precise linkages between infrastructure and development are yet to be firmly established, it is estimated that infrastructure capacity grows step by step with economic output (Daud et al., 2018; Ebingha et al., 2019; Okpa et al., 2020; Satish, 2007). Provision of basic public utilities and other social amenities has far-reaching positive implications for both rural and urban areas. While it fosters stability and serves as an impetus for socioeconomic growth and development in the rural area, it also contributes to preventing population density in the urban area as a result of reduced rural-urban drift, thereby reducing insecurity, unemployment, squatter settlements, and other attributes of high urban population density vis-à-vis inadequate provision of social services. This study examines the relationship between infrastructural development and the well-being of rural dwellers in the Bakassi Local Government Area (LGA) of Cross River State, Nigeria. Specifically, the study examines the relationship between access road network, water supply, and the well-being of Bakassi people.

The study adopts the basic resources theory. The theory places emphasis on the role of basic natural or environmental resources in any locality or region, and it was propounded by Essang (1975). The theory holds that the economic development of any particular area depends largely on the presence, quality, and magnitude of basic natural resources within it, and that this increases income generation for the people, employment, provision of basic amenities, and overall improvement of the welfare of the people. Uche & Uche (2014) pointed out that the availability of natural or environmental resources plays an important role in

the overall development of any locality, mostly at earlier stages of the process of economic and social development. In such situations, areas with more basic natural resources tend to have higher incomes and grow faster in the provision and delivery of formal social welfare services than areas with meagre or fewer resources (as this development helps to improve the quality of the lives of the people). This explains the seeming disparity of development across the country. The theory attributes the growth and development of major cities in various geo-political zones in Nigeria to the availability and utilisation of natural resources such as coal in the East, cocoa in the West, groundnut in the North and also palm oil in the South.

Generally, the basic resource theory tends to postulate that the resources of the people of an area or locality should be used to fast track the overall development and welfare of the people. Therefore, by application to this study, the basic resource theory shows that with the availability of roads and electricity in the suburbs area, the provision and delivery of formal social welfare services should not be lacking in any way for residents, but the reality on the ground leaves much to be desired from the welfare service providers. The basic resource theory has been used in studies in rural and community development. However, the theory has been criticised on the basis that the mere availability of natural or environmental resources is not enough to accelerate development. This is so because there are areas where the abundance of natural resources has not generated development, like in the Niger Delta region of Nigeria, while in other areas like Lagos, limited natural or environmental resources have led to rapid development through other resources. That is why Okoye (1992) argued that what really counts is the availability of a technically competent labour force and a leadership strongly dedicated to economic development and the overall well-being of the people. The theory also does not consider the possibility and operation of diminishing returns, which sets in when resources are exploited in an environment where population growth is rapid or static.

## RESEARCH METHOD

This study adopted the multi-stage sampling technique, which consists of probability and non-probability sampling techniques. This study applied the qualitative as well as quantitative methods of data

analysis. The Statistical Package for Social Science (SPSS) was used to code and analyse the responses from the questionnaires distributed and retrieved. Frequency tables, simple percentages, and regression analysis were used to present the outcomes. The chi-square ( $\chi^2$ ) test was used to test the significance of the relationship in the stated hypotheses. The qualitative data collected was transcribed, reviewed, organized, coded, and analysed into common themes. Careful interpretation of the responses obtained was ensured, in order to use the points generated to relate to the themes developed. Verbatim quotes from the transcription were used to support the data.

This is mixed research which follows a cross-sectional research design to explain the relationship between infrastructural development and the well-being of rural dwellers in Bakassi Local Government Area, Cross River State, Nigeria. The major instrument chosen for the purpose of collecting data in this study was the questionnaire schedule. A uniform set of questionnaires was administered to all the respondents. The other complementary instrument used was the in-depth interviews guide so as to collect information from prominent individuals in the communities. The interviewees freely express their views on the subject of the study. Bakassi LGA has its administrative headquarters in Ikang and consists of other towns such as Abana, Akpankanya, Akwa, Amoto, Ambai Ekpa, Archibong, Atai, Ema, Efut Iwang, Ekpot Abia, and Odiong. The Bakassi LGA is mainly made up of the Oron people and lies between the Cross River estuary. The LGA was created on December 12, 1996, from Akpabuyo LGA and is bounded in the East by the Republic of Cameroon; in the South by Equatorial Guinea and the Bight of Bonny; in the West by the Cross River Estuary; and in the North by Akpabuyo Local Government Area. The LGA is one of the eight Local Government Areas in the State and among the seven hundred and seventy-four in Nigeria. Bakassi occupies an area of approximately 657km<sup>2</sup> (257 sq meters), with latitudes of 4°43' and 4°55' North of the equator and 8°26' E and 8°38' East.

## RESULT AND DISCUSSION

### Characteristics of Respondent

The results presented in Table 1 showed that 234 (55.7%) respondents were males, while 186 (44.3%) were females. With regards to age, 131 (31.2%) were aged between 28-37 years, 120 (28.6%) were aged

between 38-47 years and 75 (17.8%) were aged between 48-57 years. In terms of marital status, 245 (58.3%) were single and 151 (36.0%) were married.

Table 1. Socio-Demographic Characteristics of the Respondents

Variables	Frequency	Percentage %
Sex		
Male	234	55.7
Female	186	44.3
Age (in years)		
18-27	50	11.9
28-37	131	31.2
38-47	120	28.6
48-57	75	17.8
58+	44	10.5
Marital status		
Married	151	36.0
Single	245	58.3
Divorced	0	0.0
Widow/widower	8	1.9
Co-habiting	16	3.8
Religion		
Christianity	396	94.3
Islam	2	0.5
Traditional religion	22	5.2
Educational status		
No formal education	86	20.5
Primary	120	28.6
Secondary	166	39.5
Tertiary	48	11.4
Occupational status		
Farmer	101	24.0
Trader/business	148	35.2
Civil servant	54	12.8
Unemployed	78	18.6
Artisan	17	4.0
Student	20	4.8
Clergy	2	0.5
Monthly income		
<N20,000	201	47.8
N20,000-N50,000	152	36.2
N51,000 and above	67	16.0

With regards to religion, 396 (94.3%) respondents were Christians, 2 (0.5%) were Muslims, and 22 (5.2%) were traditional religions followers. For educational status, 120 (28.6%) respondents had primary education. 166 (39.5%) had secondary education and 48 (11.4%) had tertiary education. In terms of occupational status, 101 (24.0%) were farmers, 148 (35.2%) were traders/businessmen or women, 54 (12.8%) were civil servants, and 78 (18.6%) were unemployed. In terms of monthly earnings, 201 (47.8%) earned less than N20,000, 152 (36.2%) earned between N20,000 and N50,000, and 67 (16.0%) earned N51,000 or more.

### Road Construction

The results in Table 2 showed that most respondents 300 (71.4%) acknowledged that there is an existing feeder road in their communities, while 120 (28.6%) indicated that such provision does not exist in their communities. 110 (36.7%) respondents said the provision had been completed, 122 (40.7%) said it had been abandoned, and 68 (27.6%) said the road construction is still ongoing.

Table 2. Road Construction and Socioeconomic Well-Being

Variables	Frequency	Percentage %
Existence of feeder road construction provision in communities		
Exist	300	71.4
Do not exist	120	28.6
Total	420	100.0
Nature of the feeder road construction provision in communities		
Completed	110	36.7
Abandoned	122	40.7
On-going	68	22.6
Total	300	100.0
Type of organization or partners involved in executing feeder provision		
Government	246	82.0
Benefitting community	14	4.7
Non-governmental organization	0	0.0
Do not know	40	13.3
Total	300	100.0
Provision of feeder road construction provision has improved the socioeconomic well-being of the people		
Has improved	288	68.6
Has not improved	132	31.4
Total	420	100.0

With regards to the type of implementing organisation or partners involved in executing road construction, 240 (82.0%) indicated that most road construction in their communities was executed by the government, while 14 (4.7%) respondents indicated road construction was initiated by the benefitting communities. Out of 420 respondents, 288 (68.8%) admitted that provision of feeder road construction has improved their socioeconomic well-being, while 132 (31.4%) indicated otherwise.

As presented in Table 3, the impact of road construction on socioeconomic well-being as indicated by 288 respondents mostly included transportation of

people and goods (288 respondents or 100%); increased employment opportunities in the transport sector (255 respondents or 88.6%); increased access to health care facilities (244 respondents or 84.7%); improved access to educational institutions (213 respondents or 74.0%); increased household income (200 respondents or 69.4%); and link to neighbouring villages or communities (188 respondents or 65.3%).

Table 3. Feeder Road Construction on Socioeconomic Well-Being

Variables	Yes	No
Enhance the transportation of people and goods	288(100)	0(0.0)
Linking to neighbouring villages or community	188(65.3)	100(34.7)
Improved access to educational institutions	213(74.0)	75(26.0)
Employment of local workforce as labourers during road construction	102(35.4)	186(64.6)
Increased employment opportunities in transport sector	255(88.6)	33(11.4)
Increase household income	200(69.4)	88(30.6)
Increased access to health care facilities	244(84.7)	44(15.3)

The number in brackets denotes the percentage

All respondents affirmed that the implementation of road construction had a significant impact on community members in terms of transportation of people and farm products from the farm to the market for sale, providing employment for young men in the transport sector, and providing easy access to other places such as markets, schools, churches, and farmlands. Some respondents also highlighted that without the construction of roads, other sectors of the economy would not be developed, and they also acknowledged the deplorable state of existing roads.

The opinion of a 31years old female civil servant in Abakpa community in ward 7 highlighted that,

*"At least when roads are provided, it helps us attend to our day-to-day activities on time, like going to work, the market, dropping children off at school and other things like that, but the challenge right now is that some of our roads are bad and need repairs because they can cause accidents, especially among motorcycle riders, and the government is not doing anything about it."*

A 35 years old male from Esighi community opined that,

*"All these government roads have really helped us farmers. Before now we used to carry farm products on our heads and trek long distance to*

*our houses and sometimes if I want to sell them, I go straight to the market if that day is our market day. So, you can see that each time we harvest, we can come out to the road and see motorcycle that would carry us straight to the market. My son who has a motorcycle uses it to make money which he uses to feed his family and if road no dey other provision like school, houses, church will not be there. So, road is very important to us here”.*

While some respondents agreed to the fact that the construction of roads had affected them positively by linking previously unconnected villages and strengthening their economic ties to boost growth and development in their communities, other respondents felt that they lack community connectivity due to lack of road provisions. As reported by a respondent, most roads linking villages/communities were untarred but motorable. The negative aspects of road construction highlighted by the respondents were that it caused several motorcycle accidents due to the deplorable state of the road.

### Potable Water Supply

The results in Table 4 showed that 186 (44.3%) respondents acknowledged that there were existing potable water supply facilities in their communities, while 234 (55.7%) respondents indicated that such provisions did not exist in their communities. With regards to the nature of the potable water supply in their communities, 105 (56.4%) respondents indicated that the provision was completed, 36 (19.4%) indicated that the provision was abandoned, and 145 (24.2%) respondents indicated that the provision was ongoing. With regards to the type of organisation or partners involved in executing potable water supply, 122 (65.6%) indicated that most potable water supply provisions were executed by the government and 60 (32.2%) respondents indicated that potable water supply infrastructure was implemented by non-governmental organizations. Out of 420 respondents, 172 (41.0%) admitted that implementation of potable water supply improved the socioeconomic well-being of the people, while 248 (59.0%) indicated otherwise.

As presented in Table 5, the impact of potable water supply on socioeconomic well-being as indicated by respondents mostly includes reducing number of hours and distance travelled to search for water (149 respondents or 86.6%); increased agricultural production (128 respondents or 74.4%); increased household income generation (116 respondents or 67.4%); improvement in maternal and child health

outcomes (103 respondents or 59.9%); improved productivity of local businesses and self-employment (102 respondents or 59.3%); reducing incidence of diseases and spread (94 respondents or 54.7%); and improved personal and environmental hygiene practices (81 respondents or 47.1%).

Table 4. Potable Water Supply and Socioeconomic Well-Being

Variables	Frequency	Percentage %
Existence of potable water supply provision in communities		
Exist	186	44.3
Do not exist	234	55.7
Total	420	100
Nature of the potable water supply provision in communities		
Completed	105	56.4
Abandoned	36	19.4
On-going	145	24.2
Total	186	100
Type of organization or partners involved in executing potable water supply provision		
Government	122	65.6
Benefitting community	0	0.0
Non-governmental organization	60	32.2
Do not know	4	2.1
Total	186	100
Provision of potable water supply has improved the socioeconomic wellbeing of the people		
Has improved	172	41.0
Has not improved	248	59.0
Total	420	100

Table 5. Potable Water Supply and Socioeconomic Well-Being

Variables	Yes	No
Enhancing transportation of people and goods	288(100)	0 (0.0)
Increased agricultural production	128(74.4)	44(25.6)
Reducing number of hours and distance travelled to search for water	149(86.6)	23(13.4)
Improved personal and environmental hygiene practices	81(47.1)	91(52.9)
Improving productivity of local businesses and self-employment	102(59.3)	70(40.7)
Reducing incidence of diseases and spread	94(54.7)	78(45.3)
Increasing household income generation	116(67.4)	56(32.6)

The number in brackets denotes the percentage

During an the interview session, a 31 years old woman stated that,

*"Access to safe and clean drinking water, which is available but inadequately, guarantees good*

*health. With more provision of boreholes by government and nongovernmental organisations, the well-being of rural people would be enhanced".*

Meanwhile, a 28 years old female respondent submitted that

*"The water we use here is not clear enough, so we use it mainly for washing and cooking. If we want to drink water, we use the one from the tap or go to the stream to fetch water early in the morning when it is a little bit cleaner and filtered before we drink it in my house".*

Many respondents acknowledged that the availability and easy access to potable water supply in their communities reduced the incidence of water-related diseases, reduced the number of hours travelled in search of water especially during the dry season, and boosted local businesses that require water for its processing. Other respondents lamented the lack of access to potable water. This implies that the availability of potable water supply exerts a significant benefit on the benefitting communities.

### Infrastructural Development

There is no strong link between the road construction and the socioeconomic well-being of rural dwellers. The independent variable in this hypothesis is road construction, while the dependent variable is socioeconomic well-being. The results presented in Table 6 show that since the chi-square p-value was less than 0.05, the null hypothesis was rejected. This implies that road construction significantly relates to the socioeconomic well-being of rural dwellers.

There is no strong link between the potable water supply and socioeconomic well-being of rural dwellers. The independent variable in this hypothesis is potable water supply, while the dependent variable is socioeconomic well-being. The results presented in Table 6 show that since the chi-square p-value was less than 0.05, the null hypothesis was rejected. This implies that potable water supply is significantly related to the socioeconomic well-being of rural area.

The result of the first hypothesis showed that there is a significant relationship between road construction and the socioeconomic well-being of rural dwellers in the study area. This was confirmed where, out of 420 respondents, 288 (68.6%) indicated that the provision of road construction has improved their socioeconomic well-being in terms of transportation of people and goods, increased employment opportunities in the transportation sector and other non-agriculture

employment, increased access to health care facilities, increased household income, and improved access to educational institutions as depicted in Table 3. This finding corroborates the studies conducted by van de Walle & Mu (2007), van de Walle (2008), Asher et al. (2016), and Okpa and Ekong (2017) where construction of rural roads was reported to have improved the socioeconomic well-being of rural dwellers. From the findings in this study, it is evident that the provision of road construction is the backbone for overall human and capital development in any polity. This means that where there are no roads, development is limited in that area. The provision of roads alone has the potential to trigger development in other sectors of the economy, such as health, education, water supply, markets, electricity, industries, and artisanal activities. Without roads, none of the above sectors can grow on their own.

Table 6. Test of Relationship between Road Construction and Socioeconomic Well-Being

Variables	Yes	No	Total
<u>Existence of road construction in communities</u>			
$\chi^2 = 363.12$ , Sig = 0.000*			
Exist	288(96.0)	12(4.0)	300(100)
Do not exist	0(0.0)	120(100)	120(100)
Total	288(68.6)	132(31.4)	420(100)
<u>Existence of potable water supply in communities</u>			
$\chi^2 = 367.90$ , Sig = 0.000*			
Exist	172(92.5)	14(7.5)	186(100)
Do not exist	0(0.0)	234(100)	234(100)
Total	172(41.0)	248(59.0)	420(100)

\* denote significant at 0.05

The provision of a good road network can propel the influx and efflux of people and investors as well as strengthen economic ties between communities and increase the income level of individuals and families. As observed by Lyngby (2008) and Omang et al. (2020), there was a gradual shift from agricultural to non-agricultural activities there with the creation of employment opportunities in other sectors. This has been possible through the construction of roads. However, despite the enormous benefits of road construction, there were challenges confronting those who benefit from it. Most constructed rural roads were dilapidated and damaged, which was why they were often abandoned without any form of rehabilitation. Consequently, these bad roads often led to motorcycle accidents, injuries, and the deaths of victims. Hence, it is evident that the provision of a good road network is seen to be a springboard to the development of

other sectors, which is the central premise of the principle of unbalanced growth.

The result of the second hypothesis revealed that there is a significant relationship between potable water supply and the socioeconomic well-being of rural dwellers. This is shown by the fact that 172 (41%) of the 420 people who took part in the study said that having access to potable water had improved their social and economic well-being by reducing the number of hours or distances they had to travel to find water, increasing agricultural productivity, increasing household income, improving the health of mothers and children, increasing the productivity of local businesses, and giving them more chances to work for themselves. This is in line with study of Mudavanhu (2015), Uchenna (2012) and Okoi et al. (2022). They found that having access to water greatly improves the social and economic well-being of rural people by increasing school enrollment, reducing the number of diseases, and making farming more productive.

Water supply is obviously one of the essential basic amenities for human survival and development. Some remote areas in Nigeria, including Bakassi LGA, still suffer from a substantial lack of access to potable water supply. Sources of water supply in these areas include rainwater collection, streams, springs, and dog wells. Most of the time, water gotten from these sources is directly consumed without undergoing any form of treatment or filtration process. Consequently, this poses a substantial health risk to consumers and also threatens the health status of the vulnerable population, such as pregnant women and children. The lack of access to potable water supply can exacerbate the living conditions of rural dwellers, thereby perpetuating the cycle of poverty, increasing school absenteeism, decreasing school enrolment, reducing household income level, and increasing the incidence of water-related diseases (Mudavanhu, 2015; Ofem et al., 2021). The central premise of these findings is that there is no aspect of human endeavour and sector of the economy that does not require regular access to potable water supply for the success and survival of its activities. So, it's safe to say that putting in place a water supply is a key factor in how quickly a country grows and how much poverty it has.

### Research Implication

The study has implications for improving infrastructural development in Bakassi LGA of Cross River State, Nigeria and for individuals who are direct

beneficiaries of these infrastructural projects. Considering that poor quality infrastructure is among the greatest restraints on Nigeria's reaching its true potential, the country should upgrade its infrastructure—transportation, power, communication, healthcare, education, water supply, and sanitation. Improved infrastructure has been identified as a factor that will have a catalytic effect on productivity and economic growth. Furthermore, infrastructure development must focus not only on the installation of required infrastructure but also on creating an environment that supports proper planning, maintenance, and sustainability of infrastructure.

Governments at all levels should increase their budget allocation to road construction and water supply because this will increase the funds directed to construct, fix, and rehabilitate dilapidated roads and improve the supply of potable water. The implication is that an increase in government spending on road and water projects will enhance the well-being of rural dwellers in Nigeria. Also, there should be full implementation of public-private partnership (PPP) in road projects as recommended in the national draft on transport policy for the Federal Republic of Nigeria (2010). International donor agencies must provide both financial and technical support in terms of embracing viable policies that promote technological advancement, manpower development, and pollution control policies as it concerns the water sector. The local institutions should promote public awareness activities through traditional, and mass media should encourage people to imbibe health culture in the use of the available water resources.

### CONCLUSION AND SUGGESTION

From the findings in this study, it was observed that road construction and potable water supply are statistically related to the socioeconomic well-being of rural dwellers in the study area. Although the respondents were unanimous in agreeing that access to a road network can enhance the well-being of rural dwellers, only 300 (71.4%) acknowledged that there is an existing feeder road in their communities, while 120 (28.6%) indicated that such provision does not exist in their communities. However, 110 (36.7%) respondents said the provision had been completed, 122 (40.7%) said it had been abandoned, and 68 (27.5%) said the road construction was still ongoing.



Since road construction has become a viable approach to establishing other sectors of the economy, governments at all levels should be largely involved in the provision of good and durable road construction and rehabilitation of old ones, especially in linking villages, towns, and communities to strengthen economic activities.

Similarly, 186 (44.3%) respondents acknowledged that there are existing potable water supply facilities in their communities, while 234 (55.7%) respondents indicated that such provisions do not exist in their communities. The findings of the study also showed that 105 (56.4%) respondents indicated that the provision was completed, 36 (19.4%) indicated that the provision was abandoned, and 145 (24.2%) respondents indicated that the provision was ongoing. A greater percent of the respondents (248, (59.0%) revealed that access to water supply is a major problem in the study area that has negatively affected the socioeconomic well-being of the people who do not have access to potable water. Since the construction of roads has become a viable approach to establishing other sectors of the economy, governments at all levels should be largely involved in the provision of good and durable roads and the rehabilitation of old ones, especially in linking villages, towns, and communities to strengthen economic activities.

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