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THE ASSESSMENT OF INFRASTRUCTURAL INEQUALITY IN SELECTED COMMUNITIES OF AHIAZU MBAISE LGA, IMO STATE

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Abstract

Resources are unevenly distributed on the earth's surface. Some places have plenty of resources while some have little or none. And this calls for the need of this study concerning rural infrastructural inequality in terms of housing, pipe borne water, electricity and roads. This study assessed the infrastructural inequality in selected communities of Ahiazu Mbaise L.G.A of Imo State. Both primary and secondary data types were employed in the course of this study. Six communities out of the 21 communities in Ahiazu Mbaise L.G.A were purposively selected for this study. Three hundred and ninety-nine questionnaires were distributed out of which three hundred and eighty-eight were properly filled and returned and were used for the analysis. The result shows that water (69.8%) and housing (40.2%) were the only facilities that the people believed were available and functional. Only 5.2% of the respondents believed that the facilities in the communities were excellent, 19.3% agreed that the facilities were good, 51.8% opined that the facilities were poor while 23.7% indicated that the facilities were terrible. As regards the most needed infrastructural facilities in the communities, 77.6% of the people agreed that electricity is the most needed followed by roads (20.9%). The hypothesis which states that inadequacy does not exist in the infrastructural provision of Ahiazu Mbaise L.G.A was tested using multivariate analysis and the result shows that truly existed inadequacy in the infrastructural provision of Local Government Area (F(4,381) = 4.087, P < 0.05). It was recommended that the government should ensure that they extend their developmental programmes to reach all the nooks and corners of the rural areas not minding the proximity or remoteness of the place.

Keywords: Infrastructure, Inequality, Facilities, Availability, Functionality, Imo State.

Introduction

Bajar (2019) opined that infrastructure development is tendered to be of great importance in developed and developing countries and forms a major thrust in public policy framework. Infrastructure is regarded as a major facilitator of economic growth. Nevertheless, when considering the impact of infrastructure on countries where weak governance, distorted public investment choices, and corruption are a reality, the benefits of infrastructural expansion that result in higher growth are not necessarily equally shared and could result in interregional or interpersonal income inequality (Bajar, 2019). Infrastructure is simply a means to fulfil a human need. It comprises of basic assets and objects that in the aggregate, are deemed essential for the

functioning of society and the economy (Global Sustainable Development Report, 2016). One of the relationships between infrastructure development and inequality is that when infrastructure is developed in regions lacking facilities and face resource crunch, these regions may manage to exploit the production alternatives and this will help in reducing inequality. It is worthy of note that disparities exist in access to infrastructure worldwide.

It is estimated in the Global Tracking Framework (2015) that more than 1.1 billion people still have no access to electricity. UNICEF and WHO (2015) have it that 663 million people lack access to clean water and 2.4 billion do not have adequate sanitation. Furthermore, about one third of the world's population is not served by all-weather roads. Ending

those discrepancies would require large investments as the global infrastructural gap is estimated to amount to 1 - 1.5 trillion dollars annually in developing countries (Inter-agency Task Force on Financing for Development, 2016). Investment in infrastructure has long lasting effects ranging from 20 years for roads to more than 100 years for sewer, water structures and concrete bridges. Dinkelman (2011) noted that telecommunication infrastructure can help reduce inequality by helping connect to core economic activities and allowing easy access to additional productive opportunities. Electrification programs in rural areas show impact on employment, especially female employment. Similarly, Global Sustainable Development Report (2016) indicated that improvement in the quality of rural roads could create incentives for the specialization of agricultural households in a particular crop which would reduce the diversity of their livelihoods. Infrastructural facilities such as electricity, irrigation, roads ICT increase productivity and reduce trade costs, which influences the structural changes of the economy, including levels of income and distribution jobs. Development of infrastructure improves agricultural productivity and reduces rural poverty.

Bajar (2019) stated that investing in infrastructural facilities such as roads will reduce production costs for the private sector and stimulate investment but will also improve education and health results, by making it easier for individuals to attend school and seek healthcare. Improvement in health will always make individuals more productive and to study more thereby increasing their level of education which makes them to be more aware of potential risks to their own health and that of their family members. More importantly, investing in infrastructure by improving health and life expectancy may reduce uncertainty about longevity and the risk of death which will in turn increase the propensity to save.

The effect of government investment on the equilibrium dynamics of both inequality and growth depends crucially upon the elasticity of substitution between public and private capital in production (Getachew and Turnovsky, 2015). Bajar and Rajeev (2015) found out that infrastructural facilities such as power and roads tend to increase inequality in India. Infrastructural provision is seen as an important tool for promoting regional development in which government can play an important role due to the public goods nature of infrastructural facilities. Infrastructure is seen as one of the important strategies for distributing income across members of

the society (Chatterjee and Turnovsky, 2012 as cited in Makmuri, 2017).

Kyaw Myint (2008) opined that promoting rural infrastructure development is an important issue in most developing countries. Due to lack of infrastructure, some farmers in rural area cannot directly link to wholesale markets or supermarkets or agro-processors. In addition, poor infrastructure such as unpaved roads, narrow roads and bad conditions of roads during the heavy rainy season could lead to deterioration of fresh produce quality during the transportation period and transport cost is high due to poor infrastructure. Zaik (2006), in his own view, asserted that inadequate infrastructural provision and development has negative consequences on the income, productivity and general standard of living of the rural people. Infrastructural facilities are relevant to the rural people in the sense that they improve the living conditions of the rural dwellers. Housing like food, clothing and fuel is a basic human requirement. The provision of good housing has a profound influence on the health, efficiency and well-being of any community. The perception of housing as a human requirement has been changing over the years.

We live in an unequal world. We are aware of areas that are "better off" and of others which are less "well off". Many rural communities in Nigeria lack good infrastructural facilities and social services as well. This shortcoming has led to population outflow from rural areas to urban centres. The migrants expect to achieve a higher level of living in the urban areas than what they have in the rural areas. Development in the rural areas is retarded by this massive outflow of population. Conversely, the influx of people into the urban centres, creates great demand for services, job scarcity, over population and urban sprawl leading to slump development, infrastructural shortages and decay. In other words, equitable distribution of infrastructure in the rural areas encourages other forms of development and administration. This is to improve the quality of life in the rural areas, alleviate poverty, reduce migration, raise general living standard and at the same time create a conducive environment for sustainable growth development.

Recently, lack of infrastructural investment in rural areas has been given much attention. Such investments may help people get out of the marginalization spiral, if properly planned and executed. In Ahiazu Mbaise Local Government Area therefore, many communities have been

suffering from infrastructural shortages and decay as well. This, over the years, has an adverse effect on the economic base and other forms of development in the area. It therefore creates the need to examine whether inequalities exist in the spatial distribution of infrastructure in the L.G.A. In this study, discussion is restricted to four aspects of infrastructure namely; electricity, roads, water supply and housing.

The Study Area

Ahiazu Mbaise is bounded in the North by Ehime and Isiala Mbano Local Government Areas, in the South by Aboh Mbaise Local Government Area, in the East by Ihite Uboma/Obowo/Ezinihitte Local Government Areas and in the West by Ikeduru Local Government Area (See Fig. 1). it has its headquarters at Afor-Oru (Ume et al., 2016). It covers a total area of about 114km².

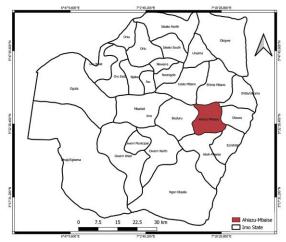


Figure 1: Map of Imo State showing the Local Government Areas and the study area

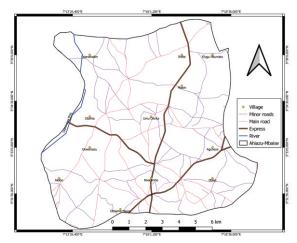


Figure 2: Map of Ahiazu Mbaise L.G.A showing the communities in the study area

Ahiazu Mbaise lies within latitudes 5°02'N and 7°17'N of the Equator and longitudes 13°10'E and 14°15'E of the Greenwich Meridian (Ogbonna et al., 2013). The geographical area has a large extent of plain topography, although there are some little hills, streams and rivers scattered unevenly throughout the Local Government Area. The Local Government Area is within the rainforest belt of southern Nigeria. The 2006 census figures shows that Ahiazu Mbaise has a population of 170,824 people out of which 86,326 were males and 84,498 were females (NPC, 2006). The people of Ahiazu Mbaise are mainly agrarians and they produce crops such as vegetables, palm oil, yam, cassava, cocoyam, maize, plantain, banana, African oil beans, pepper and cowpea.

Methodology

This research made use of cross-sectional research design. The survey makes it possible to collect detailed and factual information that describes an existing phenomenon. The research design is employed to examine the infrastructural inequality in selected facilities in Ahiazu Mbaise L.G.A. of Imo State, Nigeria with the aid of a structured questionnaire.

Types and sources of data

Data for this study were gathered from both primary and secondary sources. The primary data type include data on the infrastructure the communities have, the ones that are lacking, the provider (whether government, community effort, individuals, etc.), maintenance details, etc. while the secondary data were sourced from Ahiazu Mbaise Local Government Area Headquarters.

Population of the study

Ahiazu Mbaise has a total population of 170,824 (NPC, 2006). The population was projected for 2019 using 3% growth rate to have a total population of 250,855 persons. Six communities out of 21 communities in Ahiazu Mbaise were purposively selected for this study and they include; Umuokrika, Umuevu, Umuaju, Umuohuo, Umuegwu and Okponkume.

Sample size and sampling procedure

The sample size for this study was gotten using Taro Yamen's formula which is mathematically represented as; $\frac{n=N}{1+N(e)^2}$

Where:

n = Sample size

N = Population of the study

e = Tolerable error (5% i.e. 0.05)

With the use of the above formula, the sample size was three hundred and ninety-nine (399). This implies that 399 persons in the study area were sampled or given copies of questionnaire. There are 21 communities in Ahiazu Mbaise L.G.A of Imo State, out of which six (6) communities were purposively selected reason being that the selected communities were neither too close nor too far from the Local Government Headquarters. Systematic sampling technique was employed, during the administration of questionnaires with an interval of five households or buildings. Out of the 399 questionnaires that were administered, eleven were wrongly filled by the respondents leaving 388 for analysis.

The questionnaire that was used in this study was divided into two (2) sections. Section A consists of questions on personal data of sociodemographic characteristics of the respondents while Section B consists of questions on the levels and standards of

infrastructural provision and development in the area.

Testing of hypothesis

The hypothesis which states that inadequacy does not exist in the infrastructural provision of Ahiazu Mbaise L.G.A was tested using multivariate statistical analysis.

Results and Discussion

The result in Table 1 shows that 46.6% of the respondents were males while 53.4% were females.

Table 2 reveals that 52.3% of the respondents were married, 24.7% were single, 4.4% were divorced, 15.2% were widows while 3.4% were widowers.

The result in Table 3 indicates that 13.1% of the respondents were within the age range of 16 – 25 years, 17.8% were within the ages of 26 – 35 years, 36.1% were within the age range of 36 – 45 years, 22.9% were within the ages of 46 – 55 years while 10.1% were within the age range of 56 years and above. This implies that the people sampled were adults and must have experienced infrastructural transformation or decay in the study area.

Table 1: Sex of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	181	46.6	46.6	46.6
	Female	207	53.4	53.4	100.0
	Total	388	100.0	100.0	

Table 2: Marital status of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	203	52.3	52.3	52.3
	Single	96	24.7	24.7	77.1
	Divorced	17	4.4	4.4	81.4
	Widow	59	15.2	15.2	96.6
	Widower	13	3.4	3.4	100.0
	Total	388	100.0	100.0	

Table 3: Age of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	16 - 25	51	13.1	13.1	13.1
	26 - 35	69	17.8	17.8	30.9
	36 - 45years	140	36.1	36.1	67.0
	46 - 55years	89	22.9	22.9	89.9
	56 years and above	39	10.1	10.1	100.0
1	Total	388	100.0	100.0	

Table 4: Occupation of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Farming	129	33.2	33.2	33.2
	Student	59	15.2	15.2	48.4
	Civil servant	74	19.1	19.1	67.5
	Business	47	12.1	12.1	79.6
	Artisan	58	14.9	14.9	94.6
	Others	21	5.4	5.4	100
	Total	388	100.0	100.0	

Table 5: Educational qualifications of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No formal education	46	11.9	11.9	11.9
	Primary Certificate	98	25.3	25.3	37.2
	Secondary certificate	111	28.6	28.6	65.8
	OND/HND/BSc certificate	81	20.9	20.9	86.7
	Masters/PhD certificate	52	13.4	13.4	100
	Total	388	100.0	100.0	

Table 6: Available infrastructure in the communities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Electricity Potable water Road Housing Total	36 253 37 62 388	9.3 65.2 9.5 16 100.0	9.3 65.2 9.5 16 100.0	9.3 74.5 84 100.0

Table 4 shows the major occupation of the respondents. About 33.2% of the respondents were farmers, 15.2% were students, 19.1% were civil servants, 12.1% were businessmen/women, 14.9% were artisans while 5.4% engage in one form of activity or the other.

From the result in Table 5, 11.9% of the respondents have no formal education, 25.3% have primary school certificate, 28.6% have secondary school certificate, 20.9% have OND/HND/BSc certificate while 13.4% have Masters/PhD certificate. This implies that most of the respondents sampled were learned and have better knowledge of the subject matter.

The result on Table 6 reveal that 9.3% of the respondents were of the opinion that they have electricity in their community. Most of the respondents (65.2%) indicated that they have potable water and this finding is in contrast to the work of Obeta and Nwankwo (2015) whose finding was that water supply is not commensurate with demand in the selected communities in Enugu State. Only 9.5% argued that they have road in their community while

16% believed that they have houses. This implies that electricity and road were the major infrastructural facilities lacking in the communities. It is worthy of note that houses were provided by individuals (individual owners) in the study area.

These four infrastructural facilities were selected on the basis that their importance to human livelihood can never be over emphasised. Housing for instance, is generally viewed as the most basic human need playing a very important role in the welfare and productivity of the individual. It has a profound impact on the health, welfare and productivity of the individual (Obiadi et al., 2017). Electricity on the other hand, is required for any activity to be successful in life. Ademiloye et al. (2020) opined that energy is vital to the economic growth of every nation of the word. It is universally believed that per energy consumption of electrical energy of nations of the world determines the prosperity of such nations. In a similar way, transport infrastructure is paramount for the development of any location particularly in accessing healthcare facilities and other human activities on the earth surface.

Table 7: Has your community ever embarked on any infrastructural development?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	364	93.8	93.8	93.8
	No Total	24 388	6.2 100.0	6.2 100.0	100.0

Table 8: Availability and functionality of the infrastructure

	Road	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Available and functional	86	22.2	22.2	22.2
	Available but not functional	193	49.7	49.7	71.9
	Not available and no functional	t 109	28.1	28.1	100.0
	Total	388	100.0	100.0	
	Electricity	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Available and functional	45	11.6	11.6	11.6
	Available but not functional	117	30.2	30.2	41.8
	Not available and not functional	226	58.2	58.2	100.0
	Total	388	100.0	100.0	
	Water	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Available and functional	271	69.8	69.8	69.8
	Available but not functional	82	21.1	21.1	91.0
	Not available and not functional	35	9.0	9.0	100.0
	Total	388	100.0	100.0	
	Housing	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Available and functional	156	40.2	40.2	40.2
	Available but not functional	101	26	26	66.2
	Not available and not functional	131	33.8	33.8	100.0
	Total	388	100.0	100.0	

Table 7 shows that 93.8% of the respondents agreed that their communities have embarked on infrastructural development while 6.2% have a different opinion to that.

Table 8 shows the result on the availability and functionality of infrastructural facilities in the study area whether the infrastructure was available and functional, available but not functional or not available and not functional. From the result, water (pipe-borne water and boreholes) and housing (in terms of government housing scheme of quarters) were the only facilities that respondents believed were available and functional. 49.7% of the respondents opined that roads were available but not functional due to the fact that most of the roads have been awarded but not constructed yet, some are still under construction while others are now abandoned projects. While 58.2% agreed that electricity was not available talk more of being functional. Availability

and functionality as regard to this study refers to a situation whereby the infrastructure is provided in the community and people are using it or better still enjoying the infrastructure. Available but not functional is a situation whereby the infrastructure is provided in the community but due to one reason or the other, the community people are not benefitting from it as a result of the infrastructure being faulty, abandoned or dilapidated. While not available and not functional is a situation whereby the infrastructure is never provided in the community and since it is not provided, functionality is out of the equation. During the reconnaissance survey, it was observed that some of these infrastructures were never provided in some of the communities and even when they were provided, they were not in use as a result of it being abandoned, some parts stollen or not fully commissioned.

Table 9: How would you assess the infrastructures in your community?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent Good Poor Very terrible Total	20 75 201 92 388	5.2 19.3 51.8 23.7 100.0	5.2 19.3 51.8 23.7 100.0	5.2 24.5 76.3 100.0

Table 10: Which of these facilities is the most needed in your community?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Electricity	301	77.6	77.6	77.6
	Potable water	6	1.5	1.5	79.1
	Roads	81	20.9	20.9	100.0
	Total	388	100.0	100.0	

On the assessment of the infrastructural facilities in the study area, the result in Table 9 reveals that 5.2% of the respondents indicated that the facilities in their community were excellent, 19.3% argued that they were good, 51.8% agreed that the facilities were poor while 23.7% were of the opinion that the facilities were terrible.

From Table 10, 77.6% of the respondents opined that electricity was the most needed in their community and this finding is in consonance with the work of Ademiloye et al. (2020) in which they noted that in Nigeria, power supply to the citizens is inadequate and this is not farfetched from the fact that the growing population cannot withstand the dwindling generated power. Only 1.5% believed that potable water was the most needed, 20.9% argued that roads were the most needed in the communities as inadequate road infrastructure can jeopardize the economic, health, educational and social activities of the rural dwellers. This finding is in alliance with the findings of Gbadamosi and Olorunfemi (2016) in which they noted that transport infrastructural challenges have made it relatively difficult to

encourage the required medical and health personnel to be attracted to work in the rural areas of the country. Also, the work of Olorunfemi (2020) opined that accessibility to the rural area by road is a key factor in achieving Sustainable Development Goals in pursuance of optimal survival in these areas. Rural communities in developing countries are mostly disconnected from the major roads and public transport services that should them access to the economic and social opportunities in cities. While none agreed that housing was the most needed as they can and capable of providing houses as well as water for themselves and this result is in contrary to the research carried out by Okafor (2016) on the residential housing problem in Anambra State. He was of the opinion that in spite of the importance of housing to mankind, there is however, a universal shortage of needed dwelling units especially in developing countries including Nigeria where population growth and urbanisation are rapidly on the increase and where the gap between the housing supply and housing demand is so wide.

The test of hypothesis
Table 11: Multivariate Tests

				Hypothes	Hypothesis		
Effect		Value	F	df	Error df	Sig.	
Intercept	Pillai's Trace	.977	$4.087E3^{a}$	4.000	381.000	.000	
	Wilks' Lambda	.023	$4.087E3^{a}$	4.000	381.000	.000	
	Hotelling's Trace	42.913	$4.087E3^{a}$	4.000	381.000	.000	
	Roy's Largest Root	42.913	$4.087\mathrm{E}3^{\mathrm{a}}$	4.000	381.000	.000	
VAR00014	Pillai's Trace	1.581	106.626	12.000	1.149E3	.000	
	Wilks' Lambda	.033	220.853	12.000	1.008E3	.000	
	Hotelling's Trace	11.557	365.661	12.000	1.139E3	.000	
	Roy's Largest Root	9.859	9.440E2 ^b	4.000	383.000	.000	

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

c. Design: Intercept + VAR00014

Table 12: Tests of Between-Subjects Effects

	Dependent	Type III Sum of				
Source	Variable	Squares	df	Mean Square	F	Sig.
Corrected Model	Road?	170.154^{a}	3	56.718	927.501	.000
	Electricity?	125.231 ^b	3	41.744	261.352	.000
	Water?	118.878 ^c	3	39.626	349.198	.000
	Housing?	144.484 ^d	3	48.161	351.538	.000
Intercept	Road?	655.560	1	655.560	1.072E4	.000
	Electricity?	877.067	1	877.067	5.491E3	.000
	Water?	382.719	1	382.719	3.373E3	.091
	Housing?	373.044	1	373.044	2.723E3	.060
VAR00014	Road?	170.154	3	56.718	927.501	.000
	Electricity?	125.231	3	41.744	261.352	.000
	Water?	118.878	3	39.626	349.198	.000
	Housing?	144.484	3	48.161	351.538	.000
Error	Road?	23.482	384	.061		
	Electricity?	61.333	384	.160		
	Water?	43.575	384	.113		
	Housing?	52.609	384	.137		
Total	Road?	1839.000	388			
	Electricity?	2547.000	388			
	Water?	914.000	388			
	Housing?	894.000	388			
Corrected Total	Road?	193.637	387			
	Electricity?	186.564	387			
	Water?	162.454	387			
	Housing?	197.093	387			

a. R Squared = .879 (Adjusted R Squared = .878)

The multivariate tests F(4,381) = 4.087, P < 0.05show that the null hypothesis which states that inadequacy do not exist in the infrastructural provision of Ahiazu Mbaise L.G.A is rejected since the p-value is less than 0.05. This implies that in Ahiazu Mbaise L.G.A., infrastructural facilities are not adequately provided. The Test of Between-Subjects Effects show the significant level of each of the infrastructural facilities. From the result, roads and electricity were very inadequate in the study area as p-values are less than 0.05 while water and housing were seen to be adequate as p-values are greater than 0.05. Statistically, inadequacy(ies) exists in the infrastructural provision of Ahiazu Mbaise Local Government Area of Imo State. Infrastructural inadequacies in rural areas can pose a lot of issues to the rural dwellers as Gbadamosi and Olorunfemi (2016) opined that in spite of the diverse rural

development policy programmes designed to address improvement in the condition of rural dwellers in Nigeria, the health needs of many of the rural environment are still being hindered due to inadequacy of rural road transport infrastructures. Their findings also revealed that absence of basic infrastructures such as electricity, sources of good water, communication network, good road, market among others have disallowed the health workers in their study area to stay and work in the hospital.

Conclusion

This research assessed the infrastructural inequality in selected communities of Ahiazu Mbaise L.G.A, Imo State, Nigeria. Both primary and secondary data types were employed in the course of this study. Six communities out of the 21 communities in Ahiazu

b. R Squared = .671 (Adjusted R Squared = .669)

c. R Squared = .732 (Adjusted R Squared = .730)

d. R Squared = .733 (Adjusted R Squared = .731)

Mbaise L.G.A were selected for this study. Three hundred and ninety-nine questionnaires were distributed out of which three hundred and eightyeight were properly filled and returned and were used for the analysis. 53.4% of the people that were sampled were females while 46.6% were males. The result shows that electricity and roads were the major infrastructural facilities lacking in the communities. The people of Ahiazu Mbaise believed that they do not depend on the government for provision of houses rather they build their individual houses themselves. The research went further to test the hypothesis which states that inadequacy do not exist in the infrastructural provision of Ahiazu Mbaise L.G.A. The hypothesis was tested using multivariate analysis and the result shows that truly inadequacy exist in the infrastructural provision of the Local Government Area (F(4,381) = 4.087, P < 0.05).

Recommendations

• The government should ensure that they extend their developmental programmes to reach all the

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- nooks and corners of the rural areas not minding the proximity or remoteness of the place.
- Infrastructure such as feeder roads should be adequately provided to link the rural areas with the urban centres so that rural farmers can cheaply and easily evacuate their agricultural produce to the urban markets for sale.
- Government should encourage community selfhelp efforts in communities through technical and financial assistance.
- Communities should not depend solely on the government for infrastructural provision. There is need for communities to embark on infrastructural development projects to promote well-being of the community members.
- Individuals are also encouraged to carried out developmental projects such as provision of electricity, potable water supply, even road constructions if they are capable financially.
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