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Inter-regional differential in access to, and satisfaction from basic infrastructure between oil-producing and non-oil producing areas of Ondo State, Nigeria

M. A. Asani[1*], N. B. Tanimowo[1] and T. M. Yisau[2]

[1]Department of Urban and Regional Planning, Faculty of Environmental Sciences, Ladoke Akintola University of Technology, P. M. B. 4000, Ogbomoso, Oyo State, Nigeria.
[2]Department of Urban and Regional Planning, College of Environmental Sciences, Bells University of Technology, P. M. B. 1015, Ota, Ogun State, Nigeria.

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This study aims at measuring and appraise the differential access of people in the oil bearing and non-oil bearing sub-regions of Ondo State, Nigeria; to living facilities. Housing, transportation, healthcare, power and potable water are the basic infrastructural facilities selected for the study. Four local government areas (LGAs) constitute the sample frame, while the sample size was taken from fifteen communities in the area. 1.0% of 148,574 population (1485) was sampled, using both purposive and random sampling techniques. Parametric and non-parametric statistics were used in data analysis, tabulation and cross tabulation for infrastructural counts, z-score for infrastructure ranking to determine access to, and satisfaction from infrastructural facilities; while correlation analyses to determine the level of significance. The result revealed that housing was rated highest in both areas, followed by transportation (30.1%), while water supply was rated lowest (7.8%). The z-score revealed that both water supply and power supply, on both sub-regional and general basis had negative values. Health care delivery (0.0313) in the oil producing area but negative value (-0.0313) in the non-oil producing zone and also, negative value (-0.0915) in the general analysis. In the final analysis, the oil producing areas expressed better infrastructural satisfaction compared to the non-oil producing areas. The study concludes that access to, and satisfaction from infrastructure were poor in both sub-regions and therefore recommends that, for the purpose of policy formulation on infrastructure provision, water supply requires highest attention, followed by power supply, healthcare delivery, transportation and housing in that order.

Key Words: Region, differential access, satisfaction, infrastructure.

INTRODUCTION

The presence of natural resources in a particular region may be a development liability. This can happen if exploitation of the resources causes degradation of the physical environmental without implementation of the

*Corresponding author. E-mail: maasani@lautech.edu.ng.

necessary amelioration measures, while the proceeds from the resources are used to develop other regions within the same state (Carter, 1976).

The Niger Delta oil producing region of Nigeria consists of nine states one of which is Ondo, which has two of its eighteen local government areas (Ilaje and Ese-odo) as oil producing. The main thrust of this paper is to take stock of the basic infrastructural facilities in both oil producing and non-oil producing sub-regions of the state separately, and compare level of access people in each sub-region have to these basic facilities.

The terrain, topography, vegetation and general geographical, socio-economic and socio-cultural characteristics of the two sub-regions differ and the differences have impacted on their socio-physical characteristics. In the recent past, agitations and militancy have become common occurrences in the oil producing sub-region, whereby the people were, and are still accusing the government of marginalization and negligence. Complaints about lack of development, poverty and diseases have been heard from the people in the oil producing sub-region. This raises questions such as: What is the credibility of the complaints of the people in the mineral endowed sub-region? What are the major basic infrastructural facilities provided by the government in the areas? How effective are these facilities? Which gap exists in the availability, effectiveness and access to these basic infrastructural facilities between the oil producing and non-oil producing local government areas in Ondo State. In the paper, specific improvement oil production has brought to the oil producing area relative to non-oil producing area was also evaluated.

Specifically, existing basic infrastructural facilities in the study area were identified, their availability and effectiveness were ranked, the level of satisfaction people derived from the available facilities was measured and the specific improvement occasioned by oil production, as perceived and expressed by the respondents were measured and ranked. This gave the researcher an insight into the level of deprivation and enjoyment people are experiencing in both sub-regions, separately and comparatively. Basically, the study is both perceptive and empirical.

Statement of problem

The Nigerian oil producing areas, being a resource endowed region of the country, is expected to be safe from poverty, hunger and socio-economic vices, but the reverse is the case. Complaints about hunger, poverty, diseases, death and environmental degradation, which in turn have led to break down of law and order in the area, continue to aggravate.

The ecological disturbance, which oil mining is causing has led to both geographical and economic displacement of the people. Reardon et al. (1998) posited that the low income earned in agriculture and fishing livelihood in the oil producing areas has made farming and fishing households to diversify to non-farming and non-fishing sources for upkeep of their families. Adeyemi (2004) reported oil spillage that happened in Araromi of Ondo State in 1908 as the first of such and which continues unabated in several areas of the oil producing region till today.

The scenario described above is a surprise when compared with non-oil producing sub-region of the state. In the oil producing areas, the state of basic infrastructural facilities such as electricity, potable water, transportation infrastructure, housing, and so on are poorer when compared with the non-oil bearing sub-region. This paper therefore seeks to compare the level of access of the people in both sub-regions (taking Ondo State as a region) to the basic infrastructures and satisfaction they derived from same.

LITERATURE REVIEW

Concept of region and Inequality

Agbaeze (2003) and Glasson (1978) defined a region as ‘a flexible concept, referring to a continuous and localized area intermediate between national and urban level’. The Oxford Advanced Learners Dictionary defines a region as ‘an area or division with or without definite boundaries or characteristics’. Within the context of national planning, it is viewed to be a geographical area intermediate between national and urban level otherwise known as ‘state’ (Basorun, 2003). A region illustrates a territory of distinct political unit or district.

There are many types of regions, each with its peculiar attributes that make it distinctive from others. These attributes may be physical, political, economic or social. For instance, activities of militant groups in terms of hostage taking, kidnapping and general socio-economic sabotage distinct the oil bearing region (Niger Delta) of Nigeria from the non-oil bearing regions, while incidence of desert distinct the northern part of the country from the other regions.

In defining a region more succinctly, two views exist in literature, they are the subjective and objective views. The subjective view sees a region as a way of achieving something, a model to aid in the study of the world, and as a method of classification to segregate spatial feature. The objective school sees a region as an end in itself, a real entity, an organism that can be identified and mapped (Sule, 2000).

Chorley and Hagget (1970) and Dickson (1972) considered subjective as being generally total. They hinge their argument on the fact that regions are regarded as descriptive tools defined after a particular criterion and that it is a method of classification and a means used to segregate features. Consequently, there

could be as many regions as there are criteria to define them. Hartshone (1959) asserts that a region can no more be seen as a concrete object as was conceived by the early scholars.

Within a particular region, access of the people to basic public infrastructural facilities and public utilities may be different. This is what scholars refer to as inequality. Defining inequality, Tanimowo (1987) pontificates that; regional inequalities can be defined as uneven levels of economic development and social wellbeing of people living in different geographical areas within the country. The geographical variation in distribution of resources is evident and therefore "the process of economic development in its geographical setting requires growth at different rates in different areas". In the measurement of inequality, Tanimowo employed the use of development indicators which are; The main development indicators he (Tanimowo, 1987) employed in the study are; health, education, housing, water supplies, communication, recreation and leisure, cash income, transportation, commerce and industries. Whereas, Adedipe (2002), in his measurement of inequality considered factors such as; level of unemployment, per capita income, quality of social services, quality of housing, environmental quality and out-migration of the people; which are naturally dependent on one another.

In the foregoing paragraph, it can be inferred that Tanimowo's (1987) measurement of regional inequality is more detailed and exhaustive, though some of the variables he listed can be related with Adedipe's list. For example, Adedipe listed unemployment as a variable, Tanimowo mentioned industries and commerce, both of which are two major employment generating indicators or variables. The per capita income and quality of social services listed by Adedipe can be affected by all the indicators listed by Tanimowo, while each of the Tanimowo's indicators or a combination of them can determine the rate of out-migration of the people, listed by Adedipe. The bottom line is that these variables and development indicators vary between regions in terms of quality, quantity, effectiveness and the way they affect people's life. The locational hypothesis of Rich (1980) captures the local attribution of uneven development to resource base, on which Carter and Jones (1989), in their assessment of the hypothesis write;"All regions in a given economic system are competing for a share of the total economic activity generated by that system; but that, by virtue of their location, some possess relative advantages for production and are, therefore, able to attract an over-large share of producers at the expense of other regions."

MATERIALS AND METHODS

The study is essentially both descriptive and analytical in nature and therefore relies heavily on field survey, complemented by desk works. However, the study explored both formal and informal sources of information which involves both primary and secondary sources of data.

Primary data were collected through questionnaire administration. A total of 1485 copies of questionnaire were administered among the residents in the study area. The primary data used in the research with the instruments of collection are as follows:

(1) Information on the socio-economic characteristics of the people which was obtained through administration of questionnaires to the residents of both oil producing and non-oil producing areas of the sub-region.

(2) Data on the impact of oil production on the environment of the study area and improvement oil production has brought to each of the sub-regions in terms of access to basic infrastructure, obtained by the use of questionnaire administration, interview and direct observations.

Secondary data are those that were collected to supplement the primary data collected which include population figures of the local government areas studied in the state, obtained from National Population Commission (NPC), Ondo State and reports of the existing research works carried out on the area of study.

Out of the eighteen (18) local government areas in Ondo State, four which are Ese-Odo, Ilaje, Okitipupa and Irele formed the sample frame for the study. Ese-Odo and Ilaje Local Government Areas are in the oil bearing sub-region, while Okitipupa and Irele Local Government Areas are in the non-oil producing sub-region. The oil bearing local government areas were purposively selected while the non-oil bearing local government areas were selected based on contiguity. In the four local government areas selected, fifteen communities were randomly selected as units of data collection for the study based on the sizes and population of the local government areas.

Sample size was taken, using 1.0% of the total population of the sampled communities, that is, 1.0% of 148574. So, a total of 1485 copies of questionnaire were distributed across the sampled units. Out of this number, only 1375 copies of questionnaires (92.6%) were returned with varying figures.

The number of respondents selected for questionnaire administration in each sampling unit (locality) was therefore obtained by dividing the population of the locality by the total population of the fifteen (15) localities in the four (4) selected local government areas and multiplied by one thousand four hundred and eighty-five (1485). This is expressed as:

$$\frac{P_1}{P_2} \times 1485 = N$$

Where P_1 = Population of each locality; P_2 = total population of the fifteen (15) localities selected; = Numbe r of respondents/questionnaires in each locality.

Data processing and analysis

In this paper, both qualitative and quantitative techniques were used. Non-parametric and parametric statistics were employed to analyze the data obtained and test the level of significance of variables and differences in access to, and satisfaction derived from infrastructural facilities in each sub-region. The non-parametric analyses include tabulation and cross tabulation, while the parametric statistics include Chi-square (X^2), correlations and Phi-coefficient (Ø). The mean, standard deviation and z-score were used to rate the level of access to infrastructural facilities and satisfactions derived therefrom; and determine the types of improvement oil production has brought into the two sub-regions separately.

Infrastructural satisfaction count and ranking was done, both inter-regionally and intra-regionally. Five basic infrastructural

Table 1. Infrastructure count and accessibility.

Infrastructure	Oil producing		Non-oil producing		Total	
	Count	%	Count	%	Count	%
Healthcare	249	20.3	105	16.8	354	19.1
Housing	426	34.8	152	24.3	578	31.2
Power	109	8.9	107	17.1	216	11.7
Transportation	341	27.8	216	34.6	557	30.1
Water	100	8.2	45	7.2	145	7.8

r = 0.800, P > 0.01 = 0.104 (not statistically significant). Source: Author's Field Survey, 2012.

facilities (health care delivery, housing, power supply, transportation and potable water) were selected. In addition, inter-sectoral analysis was done on the infrastructural facilities regionally. Also, intra-regional and inter-regional improvement or otherwise, occasioned by oil mining and production in the study area was measured, using correlation analyses. Sixteen forms of improvement variables were expressed by the respondents. Infrastructural count was done, where respondents indicated the infrastructural facilities they enjoyed within each sub-region and between the two sub-regions.

RESULTS

Infrastructure satisfaction count (ISC)

Infrastructure satisfaction count (ISC) is the aggregate of the frequencies of the choice of infrastructural facilities by respondents in the study area. The number of items each person chose in a particular community indicates the number of infrastructural facilities available and accessible in such a community to the best knowledge and satisfaction of the respondents, hence their level of access to such facilities. As explained to the respondents, availability alone does not determine the level at which they enjoy such facilities. The level of efficiency of such facilities is also a determinant factor of their level of satisfaction.

Generally, in the total infrastructure satisfaction rating in Table 1, it is revealed that housing facilities was the most accessible of all the infrastructural facilities in the area (31.2%), closely followed by transport facilities (30.1%), healthcare (19.1%), power supply (11.7%) and portable water supply (7.8%), which was the lowest. While housing, transportation and healthcare facilities were the most accessible (in descending order) in the two sub-regions; people expressed accessibility to portable water and power supply. If it is taken that short power supply is a general problem in the country at the time of data collection, short supply of potable water, especially in the coastal zone should not occur.

In Table 1, it was revealed that housing was the most accessible infrastructure in the oil producing sub-region which took 34.8% of the total infrastructure count in the area, while transport infrastructure took the highest percentage (34.6%) in the non-oil producing area, which are close to each other. It is interesting that housing ranked second in the non-oil producing area with 24.3% while transport ranked second (27.8%) in the oil producing sub-region. It is healthcare delivery infrastructure, which had 20.3% that ranked third in the oil producing but only 16.8% in the non-oil producing sub-region. While people in the non-oil producing expressed 17.1% access to power supply, it was only 8.9% in the oil producing area. In both sub-regions, portable water supply was rated lowest (8.2% in the oil producing and 7.2% in the non-oil producing).

In Table 1, it was revealed that there were 1850 total counts on infrastructure, including the respondents who chose more than one infrastructure. To be able to get the actual level of satisfaction, the scores were standardized by calculating percentages and z-scores, and the counts were ranked (from 1st to 5th) according to the numbers, as demonstrated in Table 2. For oil producing sub-region, mean ($\boldsymbol{x}$) is 245, standard deviation (σ) is 142.75328 while the mean ($\boldsymbol{x}$) for the non-oil producing sub-region is 125 and standard deviation (σ) is 63.50984.

Infrastructure satisfaction ranking

In terms of quantity, the statistics reveal that transportation and housing were the infrastructures from which the people derived satisfaction most in both oil producing and non-oil producing sub-regions. Table 2 shows that in sub-regions, housing and transportation ranked 1st and 2nd (inter-changeably). Housing took the lead with 34.8% in the oil producing with transportation coming 2nd (27.8%) while in the non-oil producing sub-region, transportation was the most enjoyed infrastructure (34.6%) and housing came 2nd with 24.3%. While power and water supply were not satisfactory at all in both areas, as revealed by the z-scores (negative values), people in the oil producing expressed very low satisfaction in the health sector but with a negative value (health) in the non-oil producing area which showed some level of deprivation in that area, relative to the other. The summary is that both sub-regions have relative satisfaction in housing and transportation, non-oil producing area expressed lack of satisfaction in three infrastructure (health, water and power), oil producing

Table 2. Infrastructure satisfaction ranking.

Infrastructure	Oil producing				Non-oil producing			
	Score	%	Z-score	Rank	Score	%	Z-score	Rank
Health	249	20.3	0.0313	3rd	105	16.8	-0.3521	4th
Housing	426	34.8	1.4176	1st	152	24.3	0.4754	2nd
Power	109	8.9	-1.0652	4th	107	17.1	-0.3169	3rd
Transportation	341	27.8	0.7519	2nd	216	34.6	1.6021	1st
Water	100	8.2	-1.1356	5th	45	7.2	-1.4085	5th
Total	**1225**	**100**	0.0000		**625**	**100**	0.0000	

Source: Author's Computation, 2012.

area demonstrated little satisfaction in health and no satisfaction in both power and water.

Analyses of inter-regional and inter-sectoral infrastructure satisfaction count

The inter-regional and inter-sectoral infrastructure satisfaction comparison was made both in quantitative and qualitative terms. Percentages were used for quantitative comparison (Table 3), while z-scores were applied for qualitative differentials (Table 4).

Inter-regional infrastructure satisfaction count

Inter-regional satisfaction count (IRSC) is the comparative study of the level of satisfaction on infrastructural facilities across the two sub-regions in the study area, as reflected in the Tables 3 and 4. The tables show the total infrastructure count on each sector of the infrastructure in each sub-region (oil producing and non-oil producing). This enables the researcher to compare the level of satisfaction the people had on each infrastructural facility in one region, according to the ranking, relative to the other region.

Quantitatively, Table 3 reveals that housing was the most enjoyed infrastructure in the oil producing area, having 23.0% of the total infrastructure count in both sub-regions. This was followed by transportation infrastructure (18.4%), whereas, in the non-oil producing area, transportation led in the count with 11.7% and followed by housing (8.2%). This means that while people of the oil producing sub-region enjoyed housing more than non-oil producing, the non-oil producing expressed better satisfaction in transportation more than housing. Probe into this gap in access to, and satisfaction from infrastructure facilities revealed that the marshy nature of the ecology of the oil bearing region, which made land less available for building construction; and the non-availability of roads, also due to the ecological characteristics of the oil producing region, were the major reasons for the differentials.

In qualitative term, a striking revelation from Table 4 is the satisfaction on healthcare infrastructure where the people in the oil producing recorded positive z-score (0.0313) against the non-oil producing people whose expression was negative (-0.3521). This is not unconnected with the various healthcare programmes introduced to the oil producing areas by both NDDC and OSOPADEC, which means that having development agencies for the oil producing areas makes deference in terms of infrastructure development. Both sub-regions expressed high level of dissatisfaction in water and power supply. The low percentages and negative z-scores are evident in Tables 3 and 4.

As reflected in Tables 3 and 4, there was a total of 1850 count on infrastructure satisfaction in both sub-regions. The oil producing had 1225, while the non-oil producing had 625. These totals are greater than the total number of respondents because the count was based on the choice of infrastructure, not on the number of respondents. The total count for transportation was 557 out of which 341 was for the oil producing area, which is 18.4% of the 1850 total count whereas, only 11.7% of the total was found in the non-oil producing area. Transportation ranked 2nd in the oil producing sub-region but 1st in the non-oil producing area. Housing, with z-score of 1.4176 (23.0% of the total) was the 1st in rank in the oil producing area but ranked 2nd in the non-oil producing area with 0.4754 z-score (8.2% of total).

According to the statistics in Table 4, potable water supply and power supply, on both sub-regional and general basis, had negative values; healthcare delivery, which had positive z-score value (0.0313) in the oil producing zone but negative value (-0.0313) in the non-oil producing zone, also had negative value (-0.0915) in the general analysis. While housing ranked first in the study area, transportation infrastructure took the second position, followed by healthcare delivery infrastructure, then power supply; and potable water supply, as important as it is to human survival, came last. It can be concluded that water supply is the worst in the study area.

In the final analysis, going by regional comparison, the oil producing area had better expressed infrastructural

Table 3. Inter-regional infrastructure satisfaction count.

Infrastructure	Oil producing			Non-oil producing			Total		
	Score	%	Rank	Score	%	Rank	Score	%	Rank
Health	249	13.5	3rd	105	5.7	4th	354	19.1	3rd
Housing	426	23.0	1st	152	8.2	2nd	578	31.2	1st
Power	109	5.9	4th	107	5.9	3rd	216	11.7	4th
Transportation	341	18.4	2nd	216	11.7	1st	557	30.1	2nd
Water	100	5.4	5th	45	2.4	5th	145	7.8	5th
Total	1225	66.2		625	33.8		1850	100.0	

Source: Author's Computation, 2012.

Table 4. Inter-sectoral infrastructure satisfaction count (ISISC).

Infrastructure	Oil producing			Non-oil producing			Total		
	Score	Z-score	Rank	Score	Z-score	Rank	Score	Z-score	Rank
Health	249	0.0313	3rd	105	-0.3521	4th	354	-0.0915	3rd
Housing	426	1.4176	1st	152	0.4754	2nd	578	1.1897	1st
Power	109	-1.0652	4th	107	-0.3169	3rd	216	-0.8809	4th
Transportation	341	0.7519	2nd	216	1.6021	1st	557	1.0696	2nd
Water	100	-1.1356	5th	45	-1.4085	5th	145	-1.2869	5th
Total	1225	0.0000		625	0.0000		1850	0.0000	

Source: Author's Computation (2012).

satisfaction in the study area as it accounted for 66.2% of the total infrastructure count, while the non-oil producing sub-region had 33.8% of the count. So, the oil producing area came first while the non-oil producing area came second in the ranking. Viewing this analysis generally, access to infrastructural facilities and infrastructure satisfaction across the two sub-regions compared was poor. For the purpose of policy making, water supply infrastructure requires highest attention of the government, followed by power supply, healthcare delivery, transportation and housing in that order.

Inter-sectoral infrastructure satisfaction count (ISISC)

Inter-sectoral infrastructure satisfaction count is the summation of the total access counts of one infrastructural facility relative to others in each of the sub-regions (oil producing and non-oil producing separately) in the study area. It also shows the percentage of the total count on one infrastructure to the totality of the counts on the entire infrastructure count in a particular sub-region, using the standardized score to measure the level of satisfaction and deprivation on one infrastructural facility relative to others as shown in Tables 3 and 4.

The tables revealed that both quantitatively and qualitatively, the total percentage and sum of z-score across the two sub-regions compared revealed best access to and satisfaction on housing which was closely followed by transportation. While housing had 31.2% of the total count and a positive z-score of 1.1897 (Table 3), transportation had 30.1% of total count with a positive z-score of 1.0696. Ordinarily, one might think that healthcare infrastructure might have average performance with a percentage of 19.1, but the negative z-score of -0.0915 is a prove of deprivation, though the healthcare infrastructure was better in the oil producing area (positive z-score of 0.0313) than in the non-oil producing area (negative z-score of -0.3521). Both separately and collectively, across the two areas, power supply and water supply had negative z-scores.

So, inter-sectorally, housing infrastructure was the best, followed by transportation, healthcare delivery, power supply and water supply in descending order. This means that in policy formulation and decision making on infrastructure plan and provision, water and power supply deserve more attention than others so as to level up with the other infrastructural facilities.

CONCLUSION AND RECOMMENDATION

In the final analysis, going by regional comparison, the oil producing area had better expressed infrastructural satisfaction in the study areas as it accounted for 66.2% of the total infrastructure count, while the non-oil

producing sub-region had 33.8% of the count. So, the oil producing area came first while the non-oil producing area came second in the ranking. Major reasons for the differences were ignorance of some of the people in the oil producing region, politicization of decisions in project planning and implementation, militancy of the youth (in most cases, with support of elders) and dictates of nature (ecological characteristics, particularly of the oil bearing region).

Viewing this generally, access to infrastructure facilities and infrastructure satisfaction across the two sub-regions compared was poor. For the purpose of policy making, water supply requires highest attention of the government, followed by power supply, healthcare delivery, transportation and housing, which had highest ranking in the count and rating, and deserves lowest attention of administrators and policy makers.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests.

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