

# THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

## Assessment of Socio-Demographic Changes between 1974 – 2018 around Kaduna Refining and Petrochemical Company, Chikun Local Government, Kaduna State, Nigeria

**Dr. Shehu Zakari Damau**

Land Valuation Officer, Department of Land,  
Kaduna Geographic Information Service (KADGIS), Kaduna, Kaduna State, Nigeria

**Nuratu Mohammed**

Professor, Department of Geography Bayero University, Kano, Nigeria

**Bara'u Yakubu Usman**

Human Resources Manager, Department of Human Resource,  
Kook Technologies Limited (KTL), Lagos, Nigeria

### **Abstract:**

*Socio-economic development and improvements in infrastructure enhancing positive impacts and avoiding or mitigating adverse impacts of petrochemical companies. Social impact of petroleum provides companies with an effective risk management tool and communities the opportunity to give input on a project. This paper assesses the socio-demographic changes between 1974-2018 around Kaduna Refining and Petrochemical Company both quantitative and qualitative data was used through questionnaire and Focus Group Discussion Respectively. Yamane sample size formula was used to determine 399 households around the KRPC which, was later selected purposely and the questionnaires was administered systematically. Descriptive statistics was used to analyse the data collected through the individual questionnaire and FGD by people in all communities of the study area. The result reveals both positive and negative changes. The positive changes include the evolution of Socio-demographic variables such as hospitals, Schools, Electricity and Road. This resulted in the emergence of small-scale business in the study area such as Petty trading, Achaba, Restaurants, Hotels and Computer Business centre. The findings also showed that, there is emergence of new ethnic groups in the surrounding communities. The study areas have witnessed increasing commercial activities due to the presence of the refinery. Which, indicate that there are impacts of the KRPC on the study area which are positive and negative. The positive impact is the increase in commercial activities within the area and the provision of some infrastructures and social services by the refinery, while the negative impacts are increasing health problems as result of pollution. The KRPC should undertake community development projects annually with emphasis given to projects that have direct bearing on the socio-economic lives of the people.*

**Keywords:** Social, demographic and changes

### **1. Introduction**

Discovery of crude oil, its extraction, refining and marketing had impacted on the Nigeria economy as well as the social life of Nigerians both positively and adversely. Commercial-scale production of oil will require substantial land area for each facility and the large-scale deployment of oil will lead to conversion of lands from other existing uses. Land conversion for ponds, processing facilities, and refineries for most products will be localized, and potential land conversion for related infrastructure, such as roads and power lines to the facilities, will be more diffuse and will involve linear features (Porter, Forschner & Blair, 2001).

Potential social impacts of an oil and gas project can be both positive and negative. Adverse impacts such as resource use and the movement of people are often well publicized. However, these are often balanced by positive impacts such as the promotion of employment, socio-economic development and improvements in infrastructure enhancing positive impacts and avoiding or mitigating adverse ones. Social impact of petroleum provides companies with an effective risk management tool and communities the opportunity to give input on a project (Hunter, 2015).

Oladele (2014) posits that provision of employment opportunities is one of the positive sides of oil industry. Therefore, the presence and activities of the oil industries have created more opportunities for employment in Nigeria. The various oil companies in Nigeria have employed contractors to handle most community projects (total contractors), other areas of contract award are security, clearing up of oil equipment as well as supplies (Petroleum Exploration and development in Nigeria). Speaking further on the provision of social infrastructure, Obadan (2000) noted that as a good corporate citizen, NNPC recognizes the importance of regular availability of social amenities in the day to day lives of people of the oil producing communities. The corporation therefore, between 1986 and 1991, encouraged almost all its

joint venture partners to undertake series of basic amenities in these communities as well as in higher institution across the country.

The activities of the oil industry have often resulted in a different multitude of social, environment and economic problem such as environmental pollution, occupation, dislocation, rural-urban drift, unemployment and poor human health (Omajemite, 2008).

This paper intends to address adequate empirical evidence regarding socio-demographic impacts of oil refinery in the surrounding communities of Kaduna oil refinery. Many environmental and socio-economic impacts resulting from oil refinery activities such as social amenities, employment, and change in land use, traditional livelihood and population have not been given serious attention and documented yet the seare associated impacts of oil refinery activities on the well being of the surrounding communities, hence necessitating this research. In this study, much of social issues are going to be assess. However, the study make emphasis on the socio-economic impact emerged after the establishment of the refinery in the communities.

## 2. Description of the Study Area

The Chikun local government area of Kaduna state is located between latitude  $10^{\circ}$  to  $11^{\circ}$  North and longitude  $7^{\circ}$  and  $8^{\circ}$  East. The Kaduna refinery occupies  $2.89\text{km}^2$ , the local government area has a total land area of ( $41\text{km}^2$ ) of the area (figure 1). The Chikun Local Government are initially characterized by over 80% agricultural land use. Adewuyi & Baduku (2012) also added that about 85% of the land is suitable for agricultural cultivation. However, owing to the Kaduna refinery, the land use pattern is fast changing. The decision to construct the third Nigeria refinery in Kaduna was taken in 1974 along with the second NNPC refinery located in Warri after the first one in Port Hartcourt (NNPC, 2016). Again, the Kaduna Refinery was successfully commissioned by NNPC and ran at full capacity utilization (Mohammed, 2013).

However, in the present time (2017) the activities in Chikun local government area also reflect the commercial services, transport and infrastructural facilities are present in the areas such as electric power supply, pipe borne water, good roads, banks and telephone service.

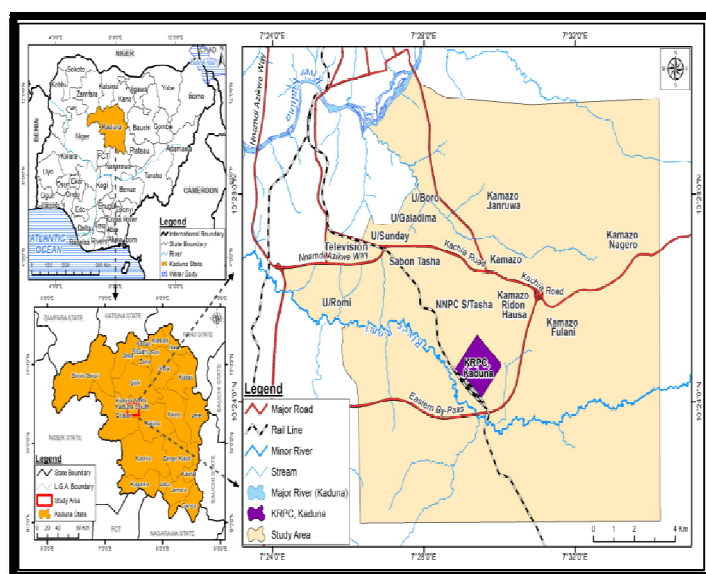


Figure 1: Kaduna Refinery and the Study Locations (Communities)

Source: GIS Laboratory, Department of Geography (BUK, 2017)

### 2.1. Research Method

Reconnaissance survey was carried out in the study area in order to be acquainted with the various land use types and its people. Information on major communities, socio-economic activities, places and time of changes were surveyed. This research used both quantitative and qualitative types of data through primary sources of data generation. The primary data was sourced from questionnaire survey, the generated through questionnaire was purely quantitative. The qualitative sources of data are Focus Group Discussion (FGD).

### 2.2. Population, Sample Size and Tools for Data Collection

Considering the importance of the study and the objective set, three (3) investigation tools were used: Focus group discussion (FGD), Questionnaire and Field observation. The target population of the study were 106,662 residents in which 399 respondents drawn from the twelve settlements around Kaduna Refinery (Table 1). The population of the study is large. This warranted the need for Yamane (1976) formula for sample size. The sample size computation is shown below:

$$n = \frac{n}{1 + n(e)^2}$$

n = 399

A questionnaire was administered to three hundred and ninety-nine (399) respondents in all of the study

settlements out of the projected household population of 106,662, based on the 1991 Census. There as on for using 1991 population census instead of 2006 is simply because the 2006 population census document does not specifically differentiate local/community population.

	Settlements	Projected Population (2016)	Samples Size
1	Sabon Tasha	35,497	133
2	Unguwan Galadima	3940	15
3	NNPC Sabon Tasha	6584	25
4	Unguwan Romi	19665	74
5	Kamazo Ridon Hausa	4206	16
6	Kamazo Fulani Danhonu II	3216	12
7	Kamazo	4074	15
8	Kamazo Nagero	2947	11
9	Kamazo Janruwa	5113	19
10	Unguwa Boro	4187	16
11	Unguwan Sunday	6265	23
12	Television	10968	41
	Total	106,662	399

*Table 1: 2016 Projected Populations of the Communities Around NNPC*

*Source: NPC, 1991*

### 2.3. Method of Data Analysis

Descriptive statistics was used to analyze the data collected through the individual questionnaire and FGD by people in all communities of the study area. Charts and tables were used for data presentations.

## 3. Result and Discussion

This study presents the socio-demographic changes evolved in the communities around Kaduna Refinery. The variables covered are evolution of socio-demographic changes, trend and occurrence of small-scale business, provision of social amenities and social services and major ethnic group.

### 3.2. Socio-Demographic Variables and Changes

The result was shown that as of 1974 to 1984 only Sabon Tasha had pupil's enrolment of 101 and 161, this indicated that Sabon Tasha had the highest primary school enrolment of 2210 pupils, followed by Maraban Rido with 1679 pupils, NNPC Sabon Tasha was third with 1112 pupils, while Kamazo had the least with 959 pupils (Table 2). The significant increase in the pupil's enrolment was between 2004 to 2018 which was as the result of increase in population since Sabon Tasha area is a new settlement which attract people from different location of Kaduna state. This result was in agreement with Ezra, Ezemekwe and Blamah (2012) who stated that one of the positive impacts of Kaduna Refinery on its host communities is the initiation of some social and economic projects which make lives of the people better and increases the enrolment in to schools. As part of Corporate Social Responsibility (CSR) in 2018 also reported that, the Kaduna refinery and petro-chemical company successfully completed numerous projects as part of corporate social responsibility to its host communities.

Consequently, Road transport is by far the most important element in any state transportation network carrying about 95% of all its citizen goods and passenger (Olagunju, 2011). As regards to road availability and connectivity in the four study area, Sabon-Tasha and NNPC Sabon Tasha had one road each in the year 1974, after a decade (in the year 1984) Maraban Rido later had one road network with the exception of Kamazo. This indicate slow development in the four-study area in terms of road network. Within the span of ten years, these roads were designed, developed, financed and maintained by various state governments through their ministry of works, transport and infrastructure and these roads were made to enhance the socio-economic development of the study area within the state capital, meaning that socio-economic development within the four study area was slow from 1974 to 1984. The number of roads network increased significantly as the years goes by from 1994 to 2018 in Sabon Tasha alone the roads networks increases from two (2) to six (6) which has the highest number of the road network, then NNPC Sabon-Tasha recorded three (3) in the year 2018, followed by both Maraban Rido and Kamazo with two (2) road network. The increased in roads network observed in the four-study area supported the work of Olagunju (2011) who observed that about 70% of public sector investment in the roads (transport) sector. Among the four-study area, Sabon Tasha which recorded that highest number of roads over the years is an indicator that the socio-economic activities in that area is more than the other three area, couple with the facts that Sabon Tasha is closer to NNPC. This result was supported by Cooperate Social Responsibility (2018) which opined that petro-chemical company (NNPC) embarked on a number of projects as a form of Corporate Social Responsibility to its host communities.

Schools	Location	1974	1984	1994	2004	2014	2018
	S/Tashan	101	161	251	420	800	2210
Pupils	NNCP S/Tasha	-	-	120	249	580	1112
Enrolment	Maraban Rido	-	-	179	399	720	1679
	Kamazo	-	-	-	150	390	959
	Mean	25.25	40.25	137.5	304.5	622.5	1490
Roads	Sabon Tashan	1	1	2	4	5	6
	NNPC S/Tasha	1	1	1	2	3	3
	Maraban Rido	-	1	1	1	2	2
	Kamazo	-	-	1	2	2	2
	Mean	0.5	0.75	1.25	2.25	3	3.25

Table 2: Emergence of Socio-Demographic Variables and Changes from 1974 to 2018

Source: field work, 2018

### 3.2.1. Health Facilities and Services

Health facilities identified in this study are places that provide health care, they include hospitals, Clinic, Dispensary and private hospital (Table 3). The goal of health services is to protect and improve the health of individuals and populations. As of 1974 there was no general hospital in all the four communities which might be as a result of low population of those areas, the only health facilities in the four study area was in Sabon Tasha which had two (2) private Hospital, NNPC S/Tasha and Maraban Rido had one (1) Clinic each while Kamazo had none. Within the span of ten years (that is in 1984) there was increased in the availability of health services, as Sabon Tasha recorded additional three (3) Clinics, and four (4) private hospitals, NNPC S/Tasha had only one clinic, the only clinic in Maraban Rido established in the year 1974 was still maintained. A significant increase in health facilities was recorded in year 2004, Sabon Tasha alone recorded twelve (12) private hospitals, one (1) Dispensary, and seven (7) clinics. NNPC S/Tasha had two (2) clinics and five (5) private hospitals. Maraban Rido had two (2) Clinics and six (6) private hospitals, and one (1) dispensary while Kamazo had one (1) Clinic and four (4) private hospitals in this order.

The increase in the number of health facilities across the study area was a result of increase in the communities' population. The increase in the number of hospitals can be explained from the perspectives of increase in population, resulting in the increase on socio-economic activities and the presence of state government's institutions. In the year 2018 Sabon Tasha had one (1) general hospital, four (4) clinics, and twenty-one (21) private hospitals with no dispensary. NNPC S/tasha had two (2) clinics, and eight (8) Private Hospitals, Maraban Rido also had two (2) clinics and ten (10) Private Hospitals while Kamazo had one (1) clinic and seven (7) private Hospitals. Therefore, only one general hospital was found in Sabon – Tasha which is more developed when compare with the other three communities and it has more political influence than the other communities. The finding of this study was supported by that of Ezra, Ezemekwe and Blamah (2012) who stated that one of the positive impacts of the Kaduna Refinery on it host communities is the initiation of some social and economic Project which better the lives of the people.

Location	Facilities	1974	1984	1994	2004	2014	2018
Sabon Tasha	G	-	-	-	-	1	1
	C	-	3	4	7	4	4
	D	-	-	1	-	-	-
	PH	2	4	8	12	14	21
NNPC S/Tasha	G	-	-	-	-	-	-
	C	1	1	2	2	2	2
	D	-	-	-	-	-	-
	PH	-	-	3	5	6	8
Maraban Rido	G	-	-	-	-	-	-
	C	1	-	2	2	2	2
	D	-	-	-	1	-	-
	PH	-	-	2	6	8	10
Kamazo	G	-	-	-	-	-	-
	C	-	1	1	1	1	1
	D	-	-	-	-	-	-
	PH	-	2	2	4	5	7
Total		4	11	25	40	43	55
Mean		0.25	0.69	1.5	2.44	2.69	3.5

Table 3: Health Facilities and Services, Development from 1974 - 2018

Source: Field Work, 2018.

Key G = General Hospital, C = Clinic, D = Dispensary and PH = Private Hospital

### 3.2.2. Trend and Occurrence of Small-Scale Business

A small-scale enterprise is a business that employs a small number of workers and does not have a high volume of sales. Such enterprises are generally privately owned and operated by sole proprietorships, corporations or partnerships (Flora, 2014). As shown in Table 6, the small-scale business begins to strive from the year 1994 to 2018. As at 1974 to 1984 it was recorded that no individual from the four communities was into *Achaba* business which might be as a result low population within the four communities of the study area. During that time just few numbers of people in Sabon Tasha were into Petty trading, restaurant business and hotel business. No computer business was recorded in three communities from 1974 to 1984 which the exception of Sabon Tasha who had few business centres. The small businesses had head way from the year 1994 in all the four communities which might be as a result of the growing population and the establishment of some private and public institution within these communities. Small scale business like Achaba, Petty trading and Restaurant business became very popular and common (Table 4).

The emergence of these various business meets up with challenges of the teaming population of the four settlement. Hotel and Computer Business became very popular in the year 2018 in Sabon Tasha only, while in NNPC S/Tasha, Maraban Rido and Kamazo, hotel business was very few (Table 4).

Types of Trade	Location	1974	1984	1994	2004	2014	2018
Achaba	Sabon Tashan	-	--	1	2	4	4
	NNPC S/Tasha	-	-	1	2	2	4
	Maraban Rido	-	-	2	2	3	4
	Kamazo	-	-	2	2	1	4
Petty Trading	Sabon Tashan	1	1	4	4	4	4
	NNPC S/Tasha	-	2	1	3	4	4
	Maraban Rido	-	1	2	4	4	4
	Kamazo	-	1	1	2	4	4
Restaurant	Sabon Tashan	1	1	4	4	4	4
	NNPC S/Tasha	-	1	1	2	4	4
	Maraban Rido	-	1	2	3	4	4
	Kamazo	-	1	1	2	4	4
Hotel	Sabon Tashan	1	1	1	2	4	4
	NNPC S/Tasha	-	-	-	1	1	1
	Maraban Rido	-	-	-	1	1	1
	Kamazo	-	-	-	1	1	1

Table 4: Types and Emergence of Small-Scale Business in the Four Communities

Source: Field Work, 2018

KEY: -- Nil, 1 = Very Few, 2 = Few, 3 = Popular, 4 = Very Popular

### 3.2.3. Availability of Some Social Amenities in the Four Communities

The findings revealed that there was no schools, hospitals and markets in 1974. But in 1984, NNPC was began to provide these infrastructural amenities to meet up with the growing population of these communities. As the years goes by and the population of the areas increased, NNPC was able to provide the communities with more schools, Hospital, Market, Banks and Road to meet up with the teaming population of the communities. The total number of schools established by NNPC within the span of five decades there was five (5) Schools, four (4) NNPC Hospitals, four (4) Markets, Four (4) Roads and Nineteen (19) banks (Table 5). The findings confirmed the findings of the work done by Ezra, Ezemekwe and Blamah (2012), that petro – chemical company (NNPC) embarked on and successfully completed numerous projects in the form of corporate social responsibility to the host communities in the study areas.

Social Amenities	Number and Extent						Total
	1974	1984	1994	2004	2014	2018	
Schools	-	-	1	2	1	1	5
Hospital	-	-	1	1	1	1	4
Markets	-	1	1	1	1	-	4
Banks	1	2	2	3	5	6	19
Road	1	1	-	1	1	-	4
Total	2	4	5	7	9	8	36

Table 5: NNPC Provision of Social Amenities to the four Communities

Source: Field Work, 2018

### 3.2.4. NNPC Provision of Social Services in the Four Communities

Social service is range of public services provided by an organization, with the aim of creating more effective development and to promote equality and opportunity within a given community. The Social services rendered by NNPC in the study communities where in form of construction and renovation of schools, Hospitals and the repair of electricity,

borehole and roads for the sustainable development of the study communities (Table 6). Within the span of five decades NNPC was able to renovate thirteen schools, i.e. from 1974 to 2018 within the range of two (2) to three (3) schools each per decade. The total number of Hospital constructed by NNPC from 1974 to 2018 was is seven (7), as of 1974 none was recorded, and then from 1984 to 2004 one (1) was recorded for each decade, two in 2014 and two in year 2018. The total repairs of electricity were 15 by NNPC from 1974 to 2018, with two (2) to three (3) repairs within a decade (Table 6).

For borehole repairs the total recorded was eight (8), among the repairs done by NNPC in the study communities, least was the road repairs, and the total repairs of roads by NNPC within the community for five decades was just four (4) which might be as a result of how outrageously expensive the repairs of roads can be. This social service provided by NNPC actually support and made the study communities stronger, which actually boost the socio-economic status of the local communities better. This fair share by NNPC for the greater good of the study communities which made commercial activities to be more viable within the four communities. This result corresponds with Corporate Social Responsibilities (CRS) (2018) document which stated that KRPC embarked and successfully completed numerous projects inform of social corporate responsibility in host communities.

Social Services	Number and Extent						
	1974	1984	1994	2004	2014	2018	Total
Renovation of schools	-	2	3	2	3	3	13
Renovation Hospital	-	1	1	1	2	2	7
Repair of electricity	1	2	2	3	3	4	15
Repair of borehole	-	1	3	2	1	1	8
Repair of road	-	-	-	1	2	1	4
Total	1	6	9	9	11	11	47

Table 6: NNPC Provision of Social Services to the Four Communities

Source: Field Work, 2018

### 3.2.5. Major Ethnic Groups Around KRPC/NNPC

Kaduna and its environs are situated within the territorial jurisdiction of Zaria emirate. The Sabon Tasha, NNPC/S Tasha, Maraban Rido and Kamazo are all Kaduna area populated with Gbagyi, Hausa/Fulani, Igbo and Yoruba tribes. In 1974 the most populated tribes within the study area were the Hausa/Fulani (Figure 2), the distribution of the population by tribe in 1974, the Igbo during the period were few in number in that region, while the Gbagyi, tribe were next in population who are identified as indigenous inhabitants of the place. As of 1974, there were no Yoruba in the area. From 1984 to 2018 the Igbo population have increased significantly in these communities, while the Hausa/ Fulani population on the other hand have decreased in number. The significant increase of the Igbo and Yoruba ethnic groups in these communities can be explained from the perspectives of socio-economic opportunities offered in this area.

However, Hausa/ Fulani population decreased as a result of religious and ethnic crisis experienced during early 2000, which divided Kaduna metropolis along religion and ethnic lines, the Hausa/Fulani tribe later relocate to the North of the Kaduna metropolis, where Gbagyi were relocated to other area of the states. Gbagi settlements scattered throughout the Kaduna area and these settlements include Barnawa, Kurmin Mashi, Rigasa and Kupei, Palilu, Dan Hono, Tokahe, Bugai, Kujama, Gwa-Zunu and Kanrafi. This is in agreement with the work of Usman (1977) which stated that the growth of other tribes within that region was attributed to the appeal made by their Emirs whom encouraged their people to settle in Kaduna.

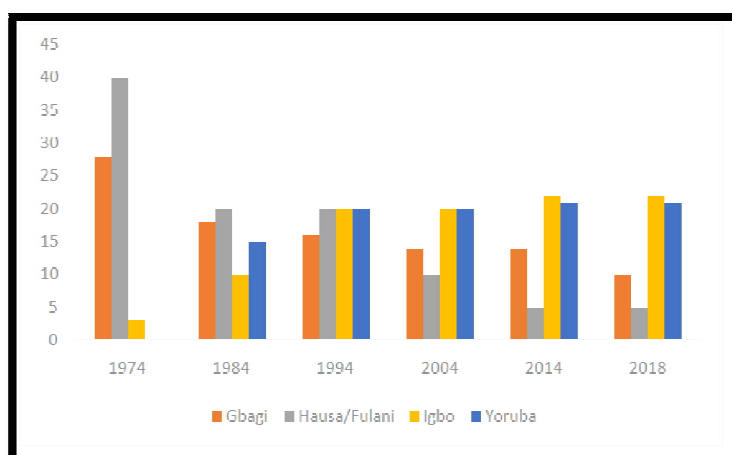


Figure 2: Occupational Trend of Ethnic Groups from 1974-2018

Source: Field Work, 2018

### 3.2.6. Major Ethnic Groups around KRPC/NNPC

Nigeria being the crossroad of Africa, where numerous streams of language converge, so Kaduna has attracted a cross section of almost every tribal and linguistic group within Nigeria. Numerically in order of importance they are Kataf,

Baju, Kadara and Jaba. But Hausa is the chief spoken language of the city and its immediate environment (Figure 3). The trends of population growth are consistent from 1974 to 2018. The growth in population seems to be stagnant around 1984 to 2014 with the exception of the Kataf tribe whose population shot up in 2014 more than the other three tribes within the region. This was as a result of the migration of people from the rural communities to urban communities to better their lives and that of their children. All the tribes mentioned below are all major tribes in the southern part of the state, they easily move from their rural communities to the southern part of Kaduna metropolis i.e. the study area. The economic hardship is one of the major causes of migration from the rural communities, as people (the studied tribes) migrates from their villages to the urban area of the states to seek a better life as confirmed by the study of Usman (1977).

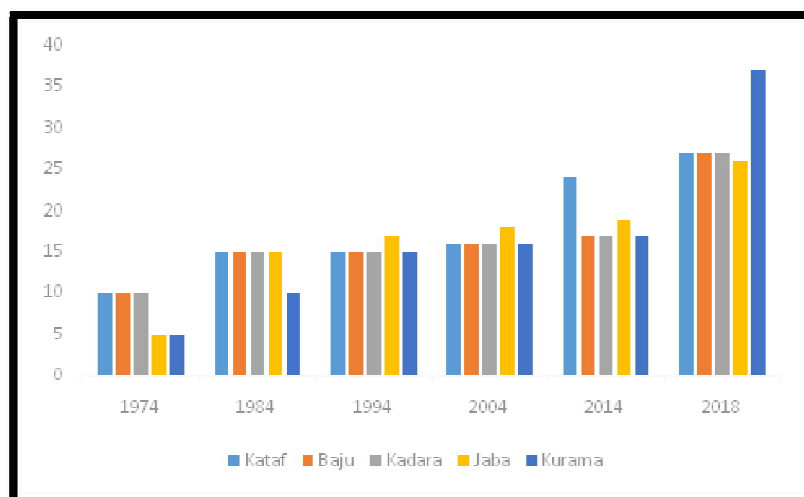


Figure 3: Occupational Trend of Ethnic Groups from 1974-2018  
Source: Field Work, 2018

#### 4. Conclusion and Recommendations

The study examined the environmental and socio-economic effects of Kaduna oil Refinery on the surrounding communities of Chikun LGA of Kaduna state, Nigeria. The KRPC impacted the study area both positive and negatively. The positive effects include the evolution of Socio-demographic variables such as hospitals, Schools, Electricity and Road. This resulted in the emergence of small-scale business in the study area such as Petty trading, Achaba, Restaurants, Hotels and Computer Business centre. There is emergence of new ethnic groups in the surrounding communities.

The study areas have witnessed increasing commercial activities due to the presence of the refinery. Which, indicate that there are impacts of the KRPC on the study area which are positive and negative. The positive impact is the increase in commercial activities within the area and the provision of some infrastructures and social services by the refinery, while the negative impacts are increasing health problems as result of pollution.

The KRPC should undertake community development projects annually with emphasis given to projects that have direct bearing on the socio-economic lives of the people, projects like provision of hospitals, schools potable drinking water, roads etc. Such developmental projects should be prioritized by the people of the areas so that the most important ones are executed immediately.

A community relations committee be set up in the study area, as this committee should meet regularly so that people from the area can speak on sensitive issues that affects them and their demand will be received and action taken with equality by the KRPC as well as intensify enlightenment in order to educate the people about the KRPC and its community related programs.

#### 5. References

- i. Adewuyi, T.A. and Baduku, A.S. (2012) Recent Consequences of Land Degradation on Farmland in the peri-urban area of Kaduna Metropolis, Nigeria. *Journal of Sustainable Development in Africa* 14(3):179-193.
- ii. Corporate Social Responsibilities (CRS) (2018) document with Kaduna Refinery and Petro-Chemical Company (KRPC).
- iii. Ezra E.L., Blamah V.N. and Ezemokwe I. (2012) Socio-economic Impact of the Kaduna Refining and Petrochemical Company (KRPC) on the Rido Area of Kaduna Metropolis. *Journal of Environmental Management and Safety Vol. 3, No. 5, (2012)* 124 – 139
- iv. Flora Richards-Gustafson (2014) Small Scale Management, Lagos: Graphixone Publishers.
- v. Hunter, T. (2015) Regulation of the Upstream Petroleum Sector: A Comparative Study of Licensing and Concession Systems. Edward Elgar Publishing.
- vi. Muhammad A. A (2013). Energy Production and Environmental Concerns in Nigeria: The Case of Kaduna Petroleum Refinery on its Host Community. *Journal of Energy Technologies and Policy*. Vol.3, No.10, 2013.
- vii. National Population Commission (1991) Population and Housing Census of the Federal Republic of Nigeria: National and State Population and Housing Tables. Priority Table Volume II.

- viii. Obadan, V.T. (2000) Oil Companies and Host Community: A Probable Scenario for Reciprocal Empowerment. *Journal of Human Ecology Kaduna State Environmental Protection Agency KEPA: The state of the Environment Report; KEPA, Kaduna.*
- ix. Oladele, D. A. (2014) 'The Acute and Chronic Effects of Wastes Associated with Offshore and Tropical Marine Ecological Processes.
- x. Omajemite B.U (2008) The Economic Dimensions of Niger Delta Ethnic Conflict: In Omotor et al (Eds) Conflict Management and Peace Building in Africa. Vol.2 PP.273
- xi. Porter, E.E., B.R. Forschner, and Blair, R.B. (2001) Woody Vegetation and Canopy Fragmentation along Forest-Urban Gradient. *Urban Ecosystems* 5(2):131-151.