General Overview of the Nigerian Construction Industry

by

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ABSTRACT

The purpose of this study is to investigate and provide a general overview of the Nigerian construction industry, its role in the national economy, the main participants in the industry, the problems that they face, and the opportunities that exist within the industry. Over the last decade, several changes have occurred in Nigeria, which have helped all sectors of the economy, especially the building & construction sector. With double digit growth rates in the last 3 years, the construction industry has outgrown all other sectors of the Nigerian economy. However, its contribution to the Nigerian GDP and employment of labor are still very low. Despite its impressive performance, the industry faces a significant number of challenges including the lack of local skilled labor, power shortage, the unavailability of materials, and the unethical practices that are very common in the industry. However, several opportunities exist in the industry especially in the ICT, education, and subcontracting sectors which makes it very attractive for investors.

Thesis Supervisor: Fred Moavenzadeh
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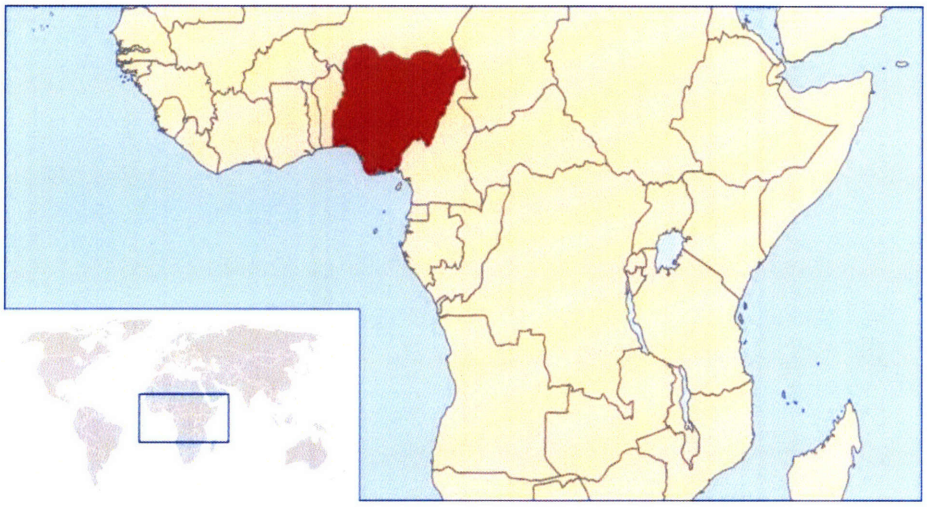


Figure 1: Location of Nigeria on the globe

Figure 2: Map of Nigeria showing major cities

INTRODUCTION

The main purpose of this study is to provide a general overview of the Nigerian construction industry. It investigates the role of the construction industry in the Nigerian economy; highlights some of the main participants in the industry and the challenges that they currently face; looks at some examples of projects in the country; proposes ways in which current players in the industry could improve their operations; and it looks at areas in which entrepreneurs could enter into the industry.

The research comes at a very promising time in the history of Nigeria as several dramatic changes have occurred over the last decade mainly sparked by the transfer of power from the military regime to a democratically elected civilian government in 1999. Since assuming power, the new government has introduced a series of reforms in most sectors of the economy, which have accelerated the recent growth and developments across the nation. Also, the large increase in government revenue, mainly driven by a combination of the rise in the price of crude oil, and the unprecedented growth of the non-oil sectors of the economy, have increased the amount of money available for construction activities across the nation.

The transfer of the seat of the federal government from the southern city of Lagos to the then centrally located village of Abuja, which had almost zero modern infrastructure and buildings in 1991, has created a significant amount of opportunities for hundreds of construction companies, which are being awarded contracts to build the new city essentially from scratch. Currently, only a fraction of the original master-plan of the city has been completed, which means there is still a significant amount of work to be done over the next few decades. Finally, the small but expanding middle class population in the country demands a significant amount of construction work especially in the residential sector.

Despite all the improvements and potential that can be seen in the past few years in the Nigerian construction industry, the challenges faced by the industry are still very significant. The market is still dominated by big foreign corporations especially for the large scale projects. Several

other problems such as the shortage of reliable power supply and the inability of the education system to graduate highly skilled graduates makes it difficult to operate efficiently in the industry. In our attempt to study the industry, this work is divided into 9 chapters.

Chapter 1 provides a brief overview of Nigeria as a country; its boundaries & area, climate, topography, people, and the government. Chapters 2 and 3 follow with a general view of the Nigerian economy and the construction industry in Nigeria, respectively. Chapter 4 looks at some of the largest players in the Nigerian construction industry including the main clients, major construction companies, the government, etc. Chapter 5 gives some examples of the mega projects that are currently being undertaken in Nigeria, while Chapter 6 looks in detail at the development of the new capital city of Abuja. Chapter 7 follows with some of the major problems that the industry currently faces, while chapter 8 looks at some of the opportunities available in the Nigerian construction industry for both existing companies and entrepreneurs. Finally, Chapter 9 wraps up with a general conclusion of the thesis.

It should be emphasized that due to the lack of accurate and reliable statistics in respect of the construction industry in Nigeria, this thesis does not claim to present a full overview of the situation of the Nigerian construction industry.

CHAPTER 1: NIGERIA, THE COUNTRY

Figure 3: Map of Nigeria showing the colors of the national flag [green-white-green]

NIGERIA: COUNTRY OVERVIEW

The Federal Republic of Nigeria, Nigeria, which is a country in West Africa, is Africa's most populous nation with a total population of over 140 million people and comprising of hundreds of ethnic groups according to the 2006 national census. Nigeria takes its name from its main river, the river Niger. Today, Nigeria has 36 states and 774 Local Government Areas divided into 6 geopolitical zones. Until 1991, the southern city of Lagos was the capital of Nigeria; however the centrally located city of Abuja became the capital in 1991 with the hope of unifying the country that has had several instances of ethnic and religious clashes.

A former British colony, Nigeria obtained its independence from Britain in October of 1960. Since independence, the country has experienced frequent coup d'états and long periods of dictatorial military rule between 1966 and 1999, when the current democratically elected civilian government was established. For the first time in 2007, the first ever civilian to civilian government transition took place when the government of the former president Olusegun Obasanjo handed over power to the current president Umaru Musa 'Yar Adua.

The constitution of Nigeria was adopted on the 5th of May, 1999, and became effective on the 29th of May, 1999. The legal system is based on the British legal system, but some of the northern states have also adopted the Islamic Shari'ah legal system.

THE BOUNDARIES AND AREA OF NIGERIA

Nigeria shares land borders with four other countries; the Republic of Benin to its west (773km), Niger Republic to its north (1497km), Chad to its North east (87km) and Cameroon to its east (1690km). To the south of Nigeria is the Atlantic Ocean (Gulf of Guinea, 853km). The country's geographic coordinates are about 10°00′N and 8°00′E. Nigeria's total land area is 910,800km^2, while water covers the remaining 13,000km^2, making a total area of about 923,800km^2.

THE CLIMATE OF NIGERIA

Nigeria's annual temperature ranges generally from extremely hot in the far north to moderately hot in the south, with slight variations between winter and summer. The two seasons that are experienced are the wet and dry seasons, which occur for different durations across the country. Broadly, the climate of Nigeria is divided into three climatic regions: Southern, Central, and Northern regions. It becomes progressively drier as one moves northwards from the coastal regions of the south towards the Sahara belt of West/North Africa.

The southern part of the country has a tropical rain forest climate with rainfall starting as early as February and lasting till November. This region sees annual rainfall of more than 4m along the coasts and a bit less than this farther away from the coastline. The rain is mainly brought by moist Atlantic air, known as the southwest monsoon. Average highs and lows for the southern region are 30°C (86°F) and 23°C (73°F) in January and 28°C (82°F) and 23°C (73°F) in June.

The northern part of Nigeria is characterized by very dry arid climate with significantly less rainfall than the southern part. The far northern region lies only a few kilometers away from the Sahara region. From December through February, the northeast trades wind brings with it very fine

dust from the Sahara and significantly decrease visibility throughout the region, a period known locally as Harmattan. Rainfall in this region lasts for about 3 months with total annual rainfall of less than 1m. Temperatures can reach up to 44°C (111°F) in the northeast region and can also drop down to as low as 6°C (43°F) at nights with the northeast trade winds.

The savannah climate of the central part of the country is slightly favorable than the northern or southern climates. It is not as hot as the far north, but much less humid than the south. Annual Rainfall is in the region of 1.5 – 2m and lasts for about six to seven months.

THE TOPOGRAPHY OF NIGERIA

The topography of Nigeria is obstructed by the two major rivers, River Niger and River Benue, which divide the country into three regions. River Niger, which is the third longest river in Africa (4200km) runs into the country from the northwest while River Benue (1400km) runs into the country from the northeast. The two rivers join at a place called Lokoja in the central part of the country, and continue southwards, emptying into the Atlantic Ocean at the Niger Delta. The two paths of the rivers form the shape of a "Y" as seen in Figure 2 above.

To the north of the Niger Valley lie the high planes of Hausaland, which is a relatively level region of average elevation of about 800m above sea level interspersed by rocky outcrops. To the northeast, the elevation lowers significantly towards the basin of Lake Chad. To the northwest, the Sokoto lowlands also lower the elevation from the rest of the region. However, the land remains relatively flat throughout.

The highest altitudes in the country are mainly located along the eastern border towards the central part of the country, and include the Benue hills, the Mambila Mountains, the Adamawa Plateau, and the Jos Plateau. The highest point in the country, which is just over 2km, is located south of the Benue River at what is known as the Vogel Peak.

The topography of the southern part of the country is significantly different from the North. To the Southwest of the Niger Valley lies the relatively rugged topography of the Yoruba highlands.

This region is not as level as the northern plains, but has several watersheds for rivers flowing northwards and southwards to the Niger River and Atlantic Ocean, respectively. The region is characterized by very large number of trees and various islands closer to the coast. The average elevation in this region is around 250m to 300m above sea level. The Southeast region of the country is basically an extension of the southwest lowlands. This area is comprised of low sedimentary plains, with a series of sandbars and lagoons. Some Notable geographical features in Nigeria include the Jos and Adamawa Plateaus, the Niger and Benue Rivers, the Zuma Rock in Abuja, the Dala and Goron Dutse Rocks in Kano state, and the Niger Delta region.

THE PEOPLE OF NIGERIA

Being the most populous nation in Africa, Nigeria makes up a big percentage of the entire African continent. Nigerians are about half the population of the West African region, about 16% of the total African population, and just under 2.5% of the entire world population. The country has more than 250 diverse ethnic groups. However, the dominant ethnic groups are the Hausa-Fulani (29%), predominantly in the northern half of the country, the Yoruba (19%) in the southwestern part of the country, and the Igbo (18%) in the southeastern part of the country. Other major ethnic groups in Nigeria are the Ijaw (10%), Kanuri (4%), Ibibio (3.5%), and Tiv (2.5%).

The three major languages in the country are the ones spoken by the three major ethnic groups. These are the Hausa, the Yoruba, and the Igbo languages. However, because there are so many languages in the country and none of them is spoken by a significant number of people all over the country, it was deemed impossible for any government to impose one of the local languages on the other people; hence the official language of Nigeria is English language, which is the colonial language. English is the language used by the governments officially and is also used for instruction in western schools. However, religious schools especially in the north use local languages as the languages for instruction in their classrooms.

The two dominant religions in the country are Islam and Christianity. The overwhelming majority of the northern part of the country is comprised of Muslims; most of the Hausa-Fulani people and the other minority ethnic groups in the region practice Islam. The Yoruba people in the

southwestern part of the country are split between Muslims and Christians, while the majority of the Igbo people are Christians. Although there is no accurate data about the exact proportions of the different religious groups in the country, according to the CIA World Factbook[1], 50% of Nigerians are Muslims, 40% are Christians, while the other 10% practice indigenous religions (CIA Factbook, 2008). Some basic facts about the Nigerian people are summarized below:

- Nationality: **Nigerian(s)**
- Population (2006 census): **140 million**
- Population growth Rate: **2.4% (2008 est.)**
- Fertility rate (avg. number of children per woman): **5.7**
- Ethnic groups (250): **Hausa, Fulani, Igbo, Yoruba, and Kanuri are the largest**
- Religions: **Islam, Christianity, Indigenous Beliefs**
- Languages: **English (official), Hausa, Igbo, Yoruba, Fulani, Kanuri, and others**
- Education: ***Attendance*** **(secondary) -- male 32%, female 27%.**

  Literacy[2] **-- male 75.7%, female 60.6%**
- Health: *Life expectancy* (2004 est.)-- **47.8 years**

THE GOVERNMENT OF NIGERIA

The type of government in Nigeria is the Federal Republic and the government is comprised of three different arms: the executive, judiciary, and legislative. The executive arm of government is comprised of the Presidency, and the Federal Executive Council that is formed by the President. The executive arm is in charge of general leadership of the country and the execution of the policies in order to move the country forward. The legislative arm of government is made up of the two houses; the Senate House, and the House of Representatives. This arm of government is in charge of policy making, constitution amendment, and approval of any major decisions by the executive arm of government. The judiciary arm is comprised of the Supreme Court, the Court of Appeals, the Shari'ah courts, as well as other lower courts within the country.

[1] https://www.cia.gov/library/publications/the-world-factbook/index.html
[2] Literacy is defined as the ability to read and write at a specified age

CHAPTER 2: THE ECONOMY OF NIGERIA

Nigeria's economy is one of the largest in Africa and has the potential to be among the strongest in the world given the amount of natural and human resources that the country is blessed with. According to the latest World Bank ranking, Nigeria's economy ranks as the 41st largest in the world (Kolapo, 2008). However, despite significant improvements in all major sectors, the economy is still heavily dependent on the oil sector, which accounts for "99 percent of export revenues, 85 percent of government revenues, and about 52 percent of gross domestic product (GDP)" (World Bank, 2008).

The International monetary fund predicts that the Nigerian economy will grow in 2008 at an impressive rate of 9.1% (IMF, 2008). This is not only due to the rise in the price of oil, which generates more revenue, but also due to the increase in investments and the glorious reforms seen in other sectors of the economy such as telecommunications, manufacturing, and Banking. According to the Nigerian Bureau of Statistics, the non oil sector of the economy grew at a rate of 8.6% in 2005, (NBS, 2006), and continues to grow at impressive rates since then, reaching 9.6% in 2007 (World Bank, 2008).

Much of Nigeria's economic progress over the last few years could be attributed to the reforms put forward by a handful of able and courageous Nigerians that form the Federal Executive Council, (FEC), between 2003 and 2007. As elaborated by Dr. Ngozi Okonjo-Iweala, the former Finance minister and head of the FEC, during a recent lecture at the 2007 TED conference[3], some of these changes that occurred during the period as part of the council's "comprehensive reform program" include the following (Okonjo-Iweala, 2007):

- **Privatization of government enterprises:** Several of the government owned enterprises in Nigeria were sold, and are still being sold, to private investors in order to increase efficiency and ensure quality of goods and services in the markets. This allows the government to focus on policy making and law enforcement as opposed to run for-profit businesses. In the

[3] TED = Technology, Entertainment, Design conference Held March 7-10, 2007 in Monterey, CA

words of Okonjo-Iweala, this basically entails "getting the state out of businesses it had no business being in" (Okonjo-Iweala, 2007).

- **Liberalization of some markets:** Through the relaxation of policies related to some of the sectors of the economy, the government was able to attract a significantly larger amount of investment especially in the form of Foreign Direct Investment (FDI) into the country. For example, according to the Nigerian Communications Commission, with the deregulation of the telecommunications sector, the private sector was able to improve communication in the country by increasing the number of telephone lines from about 500 thousand lines in 1999 to about 42 million lines in 2008, and attract investment in excess of $11.5 billion between 2001 and 2008 (Ugeh, 2008). The total FDI inflow into Nigeria over the last few years is shown in Figure 4.

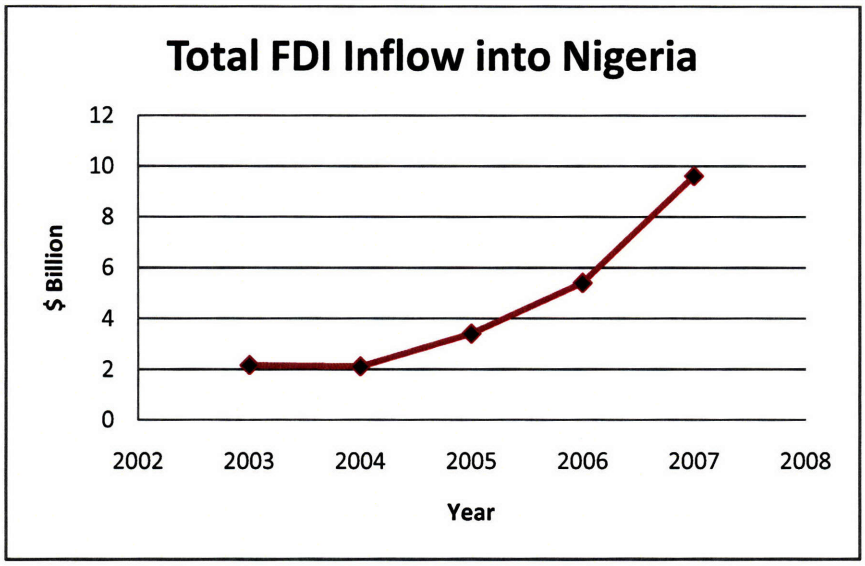


Figure 4: Total FDI Inflow into Nigeria (2003-2007) (UNCTAD, 2007)

- **Better management of government finance:** The FEC introduced a new fiscal rule, which delinked government's budget from the fluctuating price of oil. In the past, governments have predicted the annual budget based on the expected price of oil. This slows down the governments' expenditure whenever the price of oil falls, creating a period of stagnation in the economy. However, with the new fiscal rule, the government estimates its budget based

on a price that is significantly lower than the expected price of oil. This step hedges against fluctuations in government expenditure, and allows the excess amount of money to be transferred to the country's foreign reserve, to be used in case of emergency. For example, for the 2008 budget, the government estimated its revenue from oil using a benchmark price of $53.83 per barrel of oil (Olajide, 2007). Since the price of oil is currently more than twice this amount (~$123 on 05/08), this allows the government to transfer over half of its earnings from oil to the country's foreign reserve, which stood at almost $60 billion in April 2008 (Eboh, 2008).

- **Stabilization of the currency exchange rate:** With a more stable and even stronger national currency, investors are much more capable of accurately predicting prices in the economy. The exchange rate for the Naira against other major currencies has remained relatively stable over the last 3 years, except for that against the dollar, whose value is decreasing progressively against all other major currencies. This stability has helped in increasing investors' confidence in the Nigerian economy, hence helping in furthering the growth of the Nigerian economy.

- **Lowering of inflation rate:** Through sound management and policies by the Central Bank of Nigeria, the rate of inflation has been lowered from as high as 19.4% in 2004 to just 5.6% in the year 2007.

- **Consolidation of Banks:** Up until the end of 2005, 89 relatively small banks were registered in Nigeria. However, in 2005, the Governor of the Central Bank of Nigeria, Prof. Charles Soludo announced his plans for a complete overhaul of the banking sector. According to Sam Okagbue of the Nigerian Bar Association, these reforms were designed to "ensure a diversified, strong and reliable banking sector, which will ensure the safety of depositors money, play active developmental roles in the Nigerian Economy and become competent and competitive players both in the African and global financial systems," and also encourage "the emergence of regional and specialized banks" (Okagbue, 2004). Some of the specifics of these reforms include raising the minimum capitalization for all banks to ₦25

billion ($190 million) from ₦2 billion ($15 million), and requiring that all banks must hold 40% of their deposits in liquid assets. Understandably, many of the banks were unable to cope with these requirements; hence, they merged with other banks or were acquired by larger banks. At the end of this major overhaul of the sector, 25 very strong banks emerged, which are today among the largest in Africa and continue to grow ever stronger. These larger and stronger banks are now more able to finance the developments of projects across the country.

Most sectors of the Nigerian economy have witnessed some remarkable changes during the last few years. The next sections of this chapter provide some general economic data about Nigeria, and the changes and trends in some of the important sectors of the Nigerian economy.

NIGERIA: BASIC ECONOMIC DATA

Monetary Unit: **Naira [₦]**

Exchange rates (05/12/2008):

1GBP: ₦231

1USD: ₦118

1EUR: ₦182

Inflation Rate (2007): **5.6%**

GDP (purchasing power parity): **$294.8bn (2007 est.)**

GDP (official exchange rate): **$126.7bn (2007 est.)**

GDP - real growth rate: **9.1% (2008 est.)**

GDP - per capita (PPP): **$2,200 (2007 est.)**

GDP - per capita (Official Exchange Rate): **$945 (2007 est.)**

GDP - composition by sector (2005 estimate):

Agriculture: **33%**

Industry: **41.83%**

Building & Construction: **1.48%**

Services and Others: **23.69%**

Labor force: **50.13 million (2007 est.)**

Labor force - by occupation:

Agriculture: **61%**

Industry: **10%**

Services: **20% (1999 est.)**

Unemployment Rate: **5.8% (2006 est.)**

Population below poverty line: **70% (2007 est.)**

TRADE IN NIGERIA

Since no single nation can survive solely on its own in this era of globalization, trade is very important for all countries. For Nigeria, its major export commodities are crude oil and natural gas. In fact, about 95% of the country's foreign exchange earnings are from these products signifying a major problem with the diversity of its export portfolio.

In 2006, the total export from Nigeria was estimated to have worth about $62bn, while the total imports for the same year was about $30bn, hence, creating a net trade surplus of about $32bn. The other major export products from Nigeria are cocoa and rubber. The main imports commodities into Nigeria include chemicals, machinery, manufactured goods, transport equipment, food, and live animals.

In 2006, Nigeria's major export partners were the United States (48.9%), Spain (8%), and Brazil (7.3%). Its major import partners were China (10.7%), the Unites States (8.3%), Netherlands (6.2%), and the United Kingdom (5.8%). Increasingly, the country has been involved in more trade with other West African countries.

AGRICULTURE IN NIGERIA

Prior to the discovery of oil, agriculture was the mainstay of the Nigerian economy. Unfortunately, this is no longer the case as previous generations of governments and individuals have abandoned this sector and held on to the more lucrative oil sector. In the past, Nigeria was known to be a net agricultural produce exporter; however the turn in the fortune of the industry

has made the country a net importer of agricultural produce. Long gone are the days when people come from faraway places to catch glimpse of the groundnut pyramids in Kano State, or the large palm oil plantations in the southern part of the country.

Today, the major problems faced by this sector include the lack of appropriate infrastructure, unfortunate land tenure system that prohibits long term investment on agricultural lands, inconsistent and unreliable government policies, insufficient electricity supply, poor irrigation means, inadequate skilled man power, and lack of modern equipments. In addition, the unfair competitive advantage that farmers in developed countries enjoy through their governments' subsidies, hence making their products much cheaper, is another big challenge for all farmers in developing economies like Nigeria.

In the last few years, the contribution of this sector to the gross domestic product of the country has averaged about 30%. However, the agricultural sector is by far the largest employer of labor in the country. This is mainly due to the fact that many people live in rural areas and use subsistence farming for their livelihoods. In 2005, Agriculture employed almost 61% of the total Nigerian workforce.

The present democratic government has put forward a number of reasonable reforms in this crucial sector of the economy. For example, funds are made available through agricultural banks for loans to farmers easier than before, experienced foreign farmers are incentivized to come into the country and invest their knowledge and resources, and the government has put restrictions on the importation of some types of crops, in order to boost local production. However, the impacts of these reforms are yet to be fully realized.

TRANSPORTATION IN NIGERIA

Despite the importance of the transportation sector in hastening the economic growth of any nation, Nigeria's transportation sector is in great need of government and private sector intervention. Several of the highways linking big cities across the nation that were constructed many decades ago are in need of serious repair. In some cases, expansions of existing lanes are needed in order to accommodate the increase in traffic. Also, roads that link the big cities and its

surrounding towns and villages need to be paved in order to improve transportation to and from these towns; thus increase economic activity.

For rail transportation, the existing rail network is not sufficient to carry the amount of freight and people to various parts of the country. In the past, several governments have talked about improving the existing rail infrastructure between the various big cities across the country, but this is yet to be seen. Currently, there is plan to rehabilitate the old railway link between Lagos and Kano, and also other routes within the country.

Air transport is perhaps the area that is in most need of intervention. Since 1995, there have been at least 11 deadly airplane accidents that have taken the lives of several hundreds of Nigerians (CNN, 2006). As a result, airports infrastructure need to be updated and modernized, and the government must enforce strict rules on the age limit for airplanes that can fly in the country's airspace. The current state of transportation infrastructures in the country is highlighted in Table 1.

DESCRIPTION	2002	2003	2004	2005
ROAD				
Length of Roads (in kilometres)	34,400	34,400	34,400	34,400
Principal Roads	15,700	15,700	15,700	15,700
Paved Roads	28,000	28,000	28,000	28,500
of which; bad portion	6,400	6,400	6,500	6,500
RAILWAY				
Length of Railway Lines (kms)	3,500	3,500	3,500	3,500
Number of Loco motives (No.)	44	46	46	46
Number of carriages ('000 No.)	987,100	1,622,300	1,751,200	752,500
No. of Wagons	1,300	1,300	1,300	1,100
Passenger Traffic (000 Passgr-km)	279,346,000	459,103,000	495,578,000	75,170,000
Goods traffic (000 Tonnes-km)	26.50	25.99	48.96	-
MARITIME				
Loaded Goods (000tonnes)	11,800	11,900	13,900	15,700
Unloaded Goods (000tonnes)	25,200	27,800	26,900	29,200
Arriving Ships (Number)	4,100	4,300	4,600	4,600
of which: Tankers (Number)	643	654	947	894
Passengers Arriving by Sea (No.)	338	436	446	1,900
Passenger Departing by Sea (No.)	248	192	361	2,100
AIR				
Loaded Freight (000tonnes)	7.53	13.28	21.91	48.31
Unloaded Freight (000tonnes)	47.94	57.70	62.53	78.17
Passengers Departing (Number)	3,074,900	3,607,200	4,124,000	4,207,500
Transiting Passengers (Number)	91,900	116,600	57,500	215,200
Arriving Passengers (Number)	2,978,600	3,526,400	4,016,100	4,104,300
Aircraft Landing (Number)	70,600	85,800	99,400	92,800

Table 1: Summary of Nigeria's transportation infrastructure (NBS, 2006)

TELECOMMUNICATION IN NIGERIA

The telecommunications sector of the Nigerian economy is perhaps the sector that has seen the most change in the last eight years. Due to the governments' realization that "private participation was essential for attracting financial resources, innovation and new technology...Nigeria thus embraced Market Liberalization to accelerate ICT growth" (Ndukwe, 2005). Prior to the deregulation of this sector, the government had a monopoly, and was the sole investor in the provision of communication infrastructure across the country. However, since the liberalization of the telecoms sector in 2000, several private sector companies have entered into the picture, and the government's role has reduced to just policy formulation and sector regulation. Five mobile operators are currently licensed to operate in the country; MTN Nigeria, Globacom Nigeria, Celtel Nigeria, Mtel, and the newly added joint venture between Etisalat and Mubadala.

Since 1999, the number of telephone lines in the country has grown by over 8000% from 500 thousand lines in 1999 to about 42 million lines in 2008 and still counting. Also, more than $11.5 billion has been invested in the sector between 2001 and 2008 according to the Nigerian Communications Commission (Ugeh, 2008). This rate of growth of the sector makes Nigeria one of the largest growing Telecoms market in the world. As mentioned by Engr. Ernest Ndukwe, "a revolution has indeed taken place in the Telecom industry in Nigeria propelled by sector liberalization" (Ndukwe, 2005).

MANUFACTURING IN NIGERIA

The manufacturing industry in Nigeria is currently faced with a number of problems that diminish its growth potential. At the top of the list of problems is perhaps the erratic power problem that the country is facing. Currently, Nigeria is able to generate and transmit only a fraction of the demand for electricity in the country. This shortage forces firms to rely heavily on in-house electricity generators that use diesel fuel to power their plants, hence, increasing significantly their production costs. Also, the cheap consumer imports, especially from China, make it hard for Nigerian companies to compete in the global market.

Many companies all over the country have been forced to shut down as a result of the combination of the power problem and the cheap imports into the country. It is no surprise that the industrial capacity utilization in the country is estimated to be just around 30% (U.S Department of State, 2008). However, the relatively low labor cost in the country has prevented about 10%-15% of the firms from shutting down (U.S Department of State, 2008).

The manufacturing industry is dominated by large foreign companies such as Nestle, Cadbury, and Peugeot. Most of the existing indigenous companies in Nigeria are small to medium sized companies. However, within the last few decades, several strong indigenous companies and conglomerates have emerged that pose real competition to the foreign companies and the imported goods. These companies include the Dangote group of companies and TransCorp Nigeria.

Over the last few years, the federal government has embarked on a series of reforms in the manufacturing sector in order to spark higher growth rates in the sector. For example, in the textile sector, the government has placed a ban on the importation of certain types of textile materials and has provided about ₦50 billion ($400 million) at affordable rates for companies in the sector (Ochonu, 2006).

CHAPTER 3: CONSTRUCTION INDUSTRY OF NIGERIA

The Nigerian Construction Industry has recorded some impressive numbers over the last few years. For an industry that is still heavily dependent on government expenditure, it is no surprise that the industry is growing at the same time that the government's revenue is also growing. This trend in the increase in government's revenue could mainly be attributed to a few factors:

- **Increase in the price of oil:** Over the last three years, the price of oil has increased significantly, and continues to do so at alarming rates. While this is not good for countries that are net consumers of oil, its producers, like Nigeria, are reaping significant benefits from its sale. Figure 5 shows the trend in the global price of oil over the last 12 years.

Figure 5: Oil Prices, 1994-March 2008 (Putah, 2008)

Coincidentally, the government's revenue has also skyrocketed with this increase in the price of oil. Typically, the Nigerian government derives about 80% of its revenue and 90% of its export earnings from crude oil (Richardson, 2007). Figure 6 shows the trend in government revenue from the year 2001 through the year 2005. This rising trend has continued even up to the year 2008.

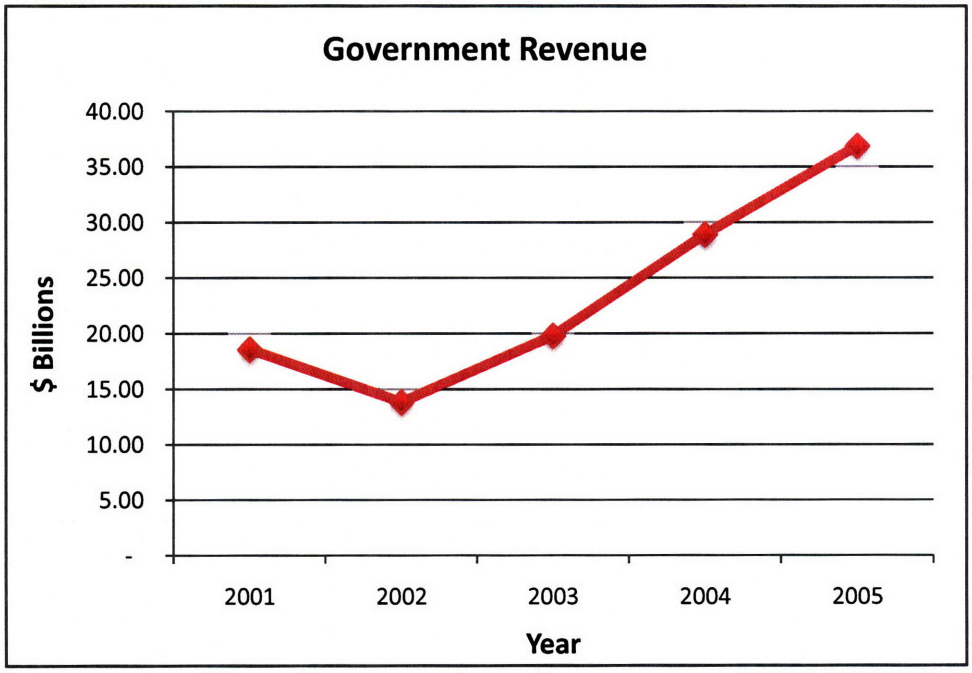


Figure 6: Trend in total government revenue

Even though the governments' revenue has been increasing significantly with the increasing price of oil, Nigeria could do much better in terms of capturing most of the increase. This could be achieved by developing refining capacity locally and exporting refined petroleum products, as opposed to exporting crude and importing the refined products at very high prices.

- **External Debt Relief:** In 2006, the Nigerian government struck a deal with its external debtors, mainly the Paris and London club of debtors, which allowed the country to pay off its $30bn external debt, leaving the country with a small amount of internal debt to service. The annual debt service on the combined loans used to be well over $3bn. However, with the debt repayment, the

annual debt service was reduced to a figure below $1 billion, which significantly increases the amount of revenue that the government receives.

- **Government's crackdown on Corruption:** Through the efforts of bodies such as the Economic & Finance Crime Commission (EFCC) and its sister agencies, the government has been able to save a significant amount of money that would have otherwise been lost to corrupt officials. This has also increased the amount of money that the government is able to use for infrastructure development around the country.

CONSTRUCTION INDUSTRY: SIZE AND GROWTH

The size of the Nigerian construction industry is very small relative to the total global construction industry. The value of global construction today is estimated to be about $4 trillion. With only a total value of about $3.15bn in 2008, the Nigerian construction industry makes up only about 0.2% of the global total. Despite this, it is by far the highest among all other West African countries. However, the industry's growth rate has been very impressive over the last few years and is well above the global industry average growth rate. It is projected to continue to grow at high rates as long as oil prices remain high and government's investments in infrastructure also remains high.

The Nigerian construction industry has outgrown most other sectors of the local economy over the last few years. In 2005, the industry grew at an impressive rate of 12.1%, which was more than double the average growth of the overall economy (5.6%) in the same year. As the economy is projected to grow at even higher rates for the foreseeable future, the construction industry is also expected to continue to perform very well. Business Monitor International group estimated that the industry had grown at a impressive rate of over 20% between 2006 and 2007. It however projects it to slow down between 2008 and 2012. Table 2 shows the value and growth of the construction Industry from 2004 to 2008 and also includes BMI's projections to 2012.

	2004	2005	2006	2007e	2008e	2009f	2010f	2011f	2012f
Value, ₦ bn	166.08	215.79	262.91	318.73	384.04	453.67	534.93	569.51	660.96
Value, $bn	1.24	1.62	2.09	2.57	3.15	3.78	4.65	5.18	6.01
% of GDP	1.94	1.82	1.97	2.05	2.13	2.21	2.29	2.37	2.46
Real growth, % y-o-y	10	12.1	21.84	21.23	20.49	18.13	17.91	6.46	16.06

Table 2: Construction Industry size and growth rate (BMI, 2007)

e – Expected; f – Forecast

NIGERIA'S CAPITAL INVESTMENT

As long as government's revenues remain high, capital expenditure will continue to grow. Over the last few years, the net capital investment has grown steadily. In 2007 the net capital investment by the government was estimated to be around ₦660bn ($5.21bn). Table 3 summarizes various quantities related to capital investment in the country.

	2004	2005	2006	2007e	2008e	2009f	2010f	2011f	2012f
Total capital investment, ₦bn	492.52	574.92	656.68	741.23	844.44	953.16	1,066	1,198	1,321
Total capital investment, $bn	3.68	4.32	5.21	5.98	6.92	7.94	9.27	10.89	12.01
Total capital investment, % of GDP	5.76	4.84	4.93	4.77	4.69	4.65	4.57	4.99	5.07
Per capita capital investment, US$	28.56	32.87	38.66	43.99	50.05	56.45	65.41	76.14	82.06
Govt. capital investment, ₦bn	261	343	545	656	727	852	280.72	294.76	341.47
Govt. capital investment, $bn	1.95	2.58	4.33	5.29	5.96	7.1	2.44	2.68	3.1
Govt. capital investment, % of total spending	24.35	22.3	29.85	27.05	28.55	31.87	10	10	10

Table 3: Total capital investment figures (BMI, 2007)

CONSTRUCTION INDUSTRY AND THE ECONOMY

The building and construction industry is one of the most important sectors of any given economy. The significance of this industry is often measured by considering its impact on the economy through quantities such as its contribution to the Gross Domestic Product (GDP) and the amount of employment it creates. This section attempts to situate the Nigerian construction industry within the national economy and highlights its contributions to the overall economy of the country.

The construction industry is considered by some economists as a leading driver of economic development in a country. This is basically due to the fact that almost all other sectors of the economy in one way or another depend solely on the products and services of the construction industry in order to carry out their operations. For example, it would be impossible for the manufacturing industry to thrive without appropriate buildings and infrastructure such as manufacturing plants, roads linking raw materials and manufacturing plants, office buildings, etc., all products of the construction industry.

The Nigerian construction industry, like in most other developing nations, is divided into two major groups: the organized, "formal," and the unorganized, "informal" sectors of the industry. The unorganized sector, for which no accurate and reliable data is available on, comprises of the simple residential buildings and similar structures built by private citizens and constructed through the efforts of gangs of artisans and labor, hired mainly using the multiple primes method of construction, i.e., owner supervised construction. The government has almost insignificant influence on the operations of this sector and receives little or no revenue thorough taxes; hence, it is very difficult to obtain reliable statistical data about this sector.

On the other hand, the organized sector of the construction industry, for which all the data available is derived from, constitute all the major companies, which are legally registered in the country and carry out organized construction projects with a combination of both highly skilled expatriates and laborers. This sector operates under set rules and regulations, including adherence to national laws on employment, procurement, and tendering. Also, the government is aware of all the activities of this sector and collects frequent taxes from the companies.

In Nigeria, the construction industry impacts the national economy in a significant way; however its contribution is still very minute relative to other sectors such as Agriculture, Mining,

and Quarrying. According to the Nigerian National Bureau of Statistics, the contribution of the building & construction industry to the overall GDP between 2001 and 2005 averaged about 1.44% (NBS, 2006)[4]. This figure was projected to rise steadily to about 2.13% in 2008 by the Business Monitor International (BMI, 2007)[5]. Also, the industry accounts for about 69% of the nation's fixed capital formation (BMI, 2007). This signifies that about 70% of the net capital investment in the country goes to the construction industry.

The summary of the percentage contributions of the building & construction industry together with some other selected industries to the overall GDP of Nigeria is provided in Table 4. Table 5 provides the data for the actual contributions in 2006 currency. As mentioned earlier, the contribution from the industry is very low when compared to other industries such as agriculture and manufacturing.

SECTOR	2001	2002	2003	2004	2005
Agriculture	34.95	36.52	32.60	34.21	32.76
Mining & Quarrying (inc. oil production)	36.39	34.69	41.60	37.33	38.99
Manufacturing	7.77	6.52	4.70	3.07	2.83
Building & Construction	**1.14**	**1.21**	**1.20**	**1.46**	**1.48**
Telecommunications	0.13	0.15	0.16	0.18	0.26
Real Estate	2.69	2.81	2.93	3.90	4.67
Others	16.93	18.10	16.81	19.85	19.01
TOTAL	100.00	100.00	100.00	100.00	100.00

Table 4: % contributions of selected industries to the Nigerian GDP (NBS, 2006)

[4] NBS – National Bureau of Statistics
[5] BMI – Business Monitor International

SECTOR	2001	2002	2003	2004	2005
Agriculture	2,410,000	2,847,000	3,232,000	3,904,000	4,774,000
Mining & Quarrying (inc. oil production)	2,509,000	2,705,000	4,124,000	4,261,000	5,682,000
Manufacturing	536,000	508,283	465,935	350,320	412,394
Building & Construction	**78,600**	**94,400**	**118,600**	**166,100**	**215,800**
Telecommunications	8,700	11,800	16,100	20,500	38,200
Real Estate	185,800	219,000	290,500	444,700	680,800
Others	3,676,000	4,115,000	5,791,000	6,526,000	8,451,000
TOTAL	6,895,000	7,796,000	9,914,000	11,411,000	14,572,000

Table 5: Contributions of select sectors to the GDP in 2006 Currency [₦ Million] (NBS, 2006)

The data for the Gross Fixed Capital Formation (GFCF) for these years are given in Table 6, while the composition of the fixed capital formation at 2006 purchasers' value is given in Table 7.

YEAR	2001	2002	2003	2004	2005
GFCF [₦ Million]	25,288	29,432	48,034	72,380	92,273
GFCF [$Million]	210	236	375	557	684

Table 6: GFCF Data for 2001 – 2005 (NBS, 2006)

DESCRIPTION	2001	2002	2003	2004	2005
Residential & Non Residential and other Construction Buildings (Excl. Land Improv.)	**20.33**	**17.93**	**12.97**	**11.35**	**11.52**
Land Improvement	**3.85**	**3.40**	**2.46**	**2.15**	**2.18**
Transport and Equipment	27.60	29.20	28.08	27.12	26.04
Machinery and Equipment	47.84	49.15	56.29	56.23	60.12
Breeding Stock	0.19	0.17	0.11	0.08	0.08
Gross Fixed Capital Formation	99.82	99.85	99.90	99.93	99.93
Increase in Stock	0.18	0.15	0.10	0.07	0.07
Gross Capital Formation	100.00	100.00	100.00	100.00	100.00

Table 7: Composition of FCF at year 2006 purchasers' value (% distribution) (NBS, 2006)

CONSTRUCTION INDUSTRY AND LABOR

The available data for the number of workers employed by the construction industry in Nigeria shows a very small number of workers in the industry in Nigeria. This is perhaps due to the fact that the data only accounted for those workers in the organized sector of the economy. Therefore, the actual number of workers employed by the industry in total would be significantly higher than what has been accounted for. Table 8 and Table 9 show the contributions of the construction industry and other selected industries to the national workforce in actual number and percentages, respectively.

SECTOR	2001	2002	2003	2004	2005
Agriculture	23,870	26,700	27,840	28,717	28,990
Mining & Quarrying	68	68	66	68	69
Manufacturing	775	680	820	844	840
Production & Dist of Utilities	356	320	410	419	445
Building and Construction	**289**	**252**	**260**	**264**	**275**
Commerce & Hotels	6,867	7,061	7,261	7,479	7,164
Others	11,375	9,719	10,143	10,296	10,828
TOTAL	43600	44800	46800	48087	48610

Table 8: # of workers employed in select sectors of the economy ('000) (NBS, 2006)

SECTOR	2001	2002	2003	2004	2005
Agriculture, Hunting, Forestry, & Fishing	54.75	59.91	59.49	59.26	60.88
Mining & Quarrying	0.16	0.15	0.14	0.14	0.14
Manufacturing	1.78	1.52	1.75	1.74	1.90
Production & Dist of Utilities	0.82	0.71	0.88	0.88	0.90
Building and Construction	**0.66**	**0.56**	**0.56**	**0.56**	**0.57**
Commerce & Hotels	15.75	15.76	15.51	15.55	14.74
Others	26.08	21.39	21.67	21.87	20.87
TOTAL	100.00	100.00	100.00	100.00	100.00

Table 9: Percentage contribution to employment by selected sectors [%] (NBS, 2006)

CHAPTER 4: CONSTRUCTION INDUSTRY PARTICIPANTS

As in all other countries, several entities are active within the construction industry in Nigeria. These include the clients, architectural & engineering firms, general contractors and subcontractors, management & engineering consultants, labor unions, equipments & materials suppliers, financial bodies, and the government. Some of these major players that are active in the Nigerian construction industry are highlighted in the following sections.

MAIN CLIENTS

Besides making policies and reforms that move the economy forward, the government also acts as a major client for construction companies. In fact, in Nigeria, the dominant client for construction services is the government through its many ministries, and agencies. While, there is no accurate data about the percentage of the total construction that is done by the government, it is safe to assume that the overwhelming majority of the contacts' value is done by the government. Other major clients are from the private sector such as individual home owners, international bodies such as the World Bank, and African Development Bank, large and medium size private companies, national and multinational oil companies, and real estate developers.

The Government as a client

The federal, state, and local governments are all major clients within the Nigerian construction industry. Dr. K.P.R Chaudhuri, the technical director of Dantata & Sawoe Construction Company, during an interview in January 2008, summarizes the main players that administer construction projects under the government. Following each entity are the types of projects that they deal with.

- **Ministry of Transportation**
  - Roads and Bridges for the whole country
  - Aviation (Airports, runways, etc.)
  - Railway lines
  - Maritime (Docks, etc.)
- **Ministry of Water Resources**
  - Dams
  - Irrigation channels
  - Water distribution networks, etc.
- **Ministry of the Federal Capital Territory**
  - Roads, bridges, water distribution systems, sewage treatment plants, and other infrastructure development for the new capital city and its satellite towns.
- **Ministry of Environment and Housing**
  - Major housing projects all over the country
  - Natural environment preservation
- **Power Holding Company of Nigeria**
  - Generating Stations
  - Distribution and Transmission networks
- **State Governments (36 State governments)**
  - Roads, Bridges, Infrastructure, Water distribution networks, Housing projects, etc. within their states.
- **Local Governments (774 Local Governments)**
  - Access roads, minor infrastructure projects, etc.

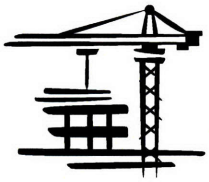
Private clients

In the past few decades, private clients did not play a major role in the construction industry in Nigeria. Most of the projects done by the private clients were usually small in scale. However, as the country continues to develop and with the government's continued efforts to deregulate

various sectors of the economy, private sector clients have began embarking on much more ambitious projects. Currently they make up a significant proportion of the total construction volume in the country, although nowhere close to the government's proportion.

The largest private sector clients in Nigeria today are mainly large oil companies, such as Chevron, Shell, Mobil, Oando, etc., Banks, Hotels, Dangote Group (the largest Nigerian conglomerate), international clients such as NGO's, the United Nations, and large Real Estate developers especially in the capital city and Lagos state. Also, a significant percentage of the private sector clients in the country are single family home owners, and small commercial and retail builders.

MAJOR COMPANIES



Since the establishment of the organized sector of the Nigerian construction industry in the early parts of the 20th century, foreign companies have dominated the scene. However, there are quite a few indigenous companies that have emerged over the years that are also very competitive in the country. Some of these indigenous companies often partner with foreign companies in order to improve their competitiveness. This section profiles a few of the dominant construction companies in the Nigerian construction market.

Julius Berger Nigeria

JULIUS BERGER
NIGERIA PLC

Julius Berger Nigeria Plc. is by far the largest player in the Nigerian construction market. It is an indigenous construction company that was incorporated in 1970 and listed on the Nigerian Stock Exchange in 1991. Its parent company, Julius Berger AG, was established in Germany in 1890, but later merged with Bilfinger AG to form Bilfinger Berger. With 16,130 employees spread all over

Nigeria, Julius Berger is not only the largest employer of labor in the construction industry, but also the largest private sector employer in the entire nation (IM Diversity, 2008).

The corporate headquarter for Julius Berger is in Abuja, but it also has offices in other places such as Lagos, Kano, and Port Harcourt. The company is managed by a team of both Nigerian and German employees. Julius Berger is known all over the country as a reliable and well qualified company, albeit an expensive one, which is able to deliver any kind of project no matter the scale and scope. The firm's Turnover in 2006 was ₦56 billion ($500 million) (Julius Berger, 2006).

Julius Berger is active in about every sector of the construction market such as infrastructure, residential & office buildings, industrial plants & buildings, marine structures, and oil & gas exploration structures. It is also involved with other sub sectors of the construction industry such as furnishing, building maintenance, and landscaping.

Some of the past projects of Julius Berger Nigeria Plc. include the 60,000 seat, $360 million, National Stadium in Abuja (completed in 2003), the 18-hole IBB International Golf Course in Abuja (1994), the world class Nnamdi Azikiwe International Airport (1997), the 300km Ajaokuta – Warri Rail Line (1993), the 830m Imo River Bridge (1993), the 7.8km Challawa Gorge Dam (1992), the Obajana Cement Plant (2005), the Bonny LNG Plant (2000), and other general infrastructural projects all over the country, especially in Abuja. Some of Julius Berger's projects in Abuja are further discussed in Chapter 5 of this thesis.

Dantata & Sawoe Const. Co. Nig. Ltd.

Dantata and Sawoe Construction Company Nigeria Limited (D&S) is an indigenous construction company that was established in 1976 by a Northern Nigerian entrepreneur. It was established at a time when the country was experiencing a significant increase in construction and infrastructure developments as a result of the oil boom of the late 1970's. The company is one of the largest employers of labor in the construction industry with over 7,000 workers.

Dantata & Sawoe is mainly based in the northern part of Nigeria, but its headquarters is in the capital city of Abuja. Its other offices are located in Kano and Lagos, in the far north and south, respectively. 60% of the company is owned by a group of Nigerian businessmen, while the other 40% is owned by a German company, CEC, which is itself fully owned by Bilfinger Berger. Like Julius Berger, Dantata & Sawoe, is also known as a reliable and solid name in the industry, which can deliver projects in a timely manner as well as within the stipulated budget.

The main areas of activity for the company are roads, bridges, and infrastructure projects. In fact, they are the leading indigenous road constructors in the country, having built hundreds of kilometers of highways throughout its 30 years of operation. In addition to roads and bridges, the company is also a specialist in other types of projects such as low rise commercial, residential, and office buildings, dams, drainage systems, and airport construction. Dantata and Sawoe's turnover in 2006 was roughly about $100 million.

Some of Dantata & Sawoe's past projects include the ₦37 billion ($300 million), 105km long section of the Kano – Maiduguri road (to be completed in 2009), the ₦13 billion ($100 million) Kano western by-pass, the 2.2km long Obajana Cement factory airstrip (2006), and the ₦17 billion ($90 million) Abuja Guzape District infrastructure project (2008).

CCECC Nigeria Limited

中国土木工程集团公司
China Civil Engineering Construction Corporation

CCECC, China Civil Engineering Construction Corporation is a Chinese state owned construction company with operations in over 40 countries including China, Nigeria, Russia, and the UAE. The company was established in 1979 and has grown to become one of the largest international contracting companies according to the Engineering News Record. The core competency of the company is in railway construction, but it has also worked on several other types of projects.

In Nigeria, the company has worked on several large scale projects, and it recently won the contract for the largest single project in the country; the rail link between Kano and Lagos, valued at some $8.3 billion. The project is financed in part with cheap loan from the Chinese government.

This explains why CCECC won the contract for the project; simply because the Chinese government is a major financier of the project and they require a Chinese contractor for the job.

Some of the past projects for CCECC in Nigeria include the $530 million Construction, Rehabilitation, and Purchase of Locomotives & Rolling Stocks for the Nigerian Railway System (contract awarded 1995), the $50 million construction of houses in the games village of the National Stadium Complex, Abuja (completed 2003), and the $16.6 million Construction of NCC Corporate Headquarters, Abuja (2005).

Setraco Nigeria Ltd.

Setraco Nigeria Limited is also an indigenous Nigerian construction company that was established in 1977 in the defunct state of Bendel. It is one of the largest construction companies in the country employing over 5,000 workers. In its early years, the firm focused on the construction of small township roads within the state of Bendel. However, today the company has grown into one of the most respected companies, which specializes in the construction of roads and bridges in over 20 states across the nation.

Setraco Nigeria Limited only undertakes construction of roads and bridges in the country and is indeed one of the leaders in this particular sub-market. In addition to building roads and bridges, the company is also a leading supplier of aggregate and asphalt. Setraco Nigeria Limited mainly operates in the southern part of the country; however, it has recently won part of the contract for the dualization of the Kano – Maiduguri road, one of the largest road projects in Nigeria linking two big cities in the northern part of the country.

Over the last three decades, Setraco has constructed hundreds of kilometers of highways, and tens of bridges across the country. In 2007 the company turned over about ₦26 billion ($215 million) (Setraco, 2007).

Costain West Africa Plc.

Costain West Africa Plc. is a construction company in Nigeria that was established as far back as 1948 during the period of British rule in the country. The company is one of the first few that came into the country to form the organized sector of Nigerian construction industry. When it was first listed on the Nigerian Stock Exchange in 1974, Costain WA was the first construction company to go public in Nigeria. The company employs about 1,200 Nigerian and foreign workers.

Costain WA is active in the delivery of mainly commercial, residential, and office buildings, dams, railways, roads, and bridges. However, the company is currently focusing on the building sector and in particular; it is focusing on private sector clients. According to Phil Wharton, the Managing Director of the company, "private sector businesses are more reliable as they are more often than not, devoid of bureaucracy and red-tape. Major decisions are reached with less stress, which gives room for easy execution of project" (Abiodun, 2007). Costain WA has a Technical Service Agreement (TSA) with a UK based company, Costain Group Plc. The company is managed by a group of Nigerian and European workers. Its head office is in Lagos state, but it also has office in the capital city of Abuja. Some of Costain's main projects from the past include the 32-story NECOM House in Lagos, which was for many years the tallest building in West Africa (1979), and the Rivers state secretariat building.

PW Nigeria Ltd.

PW Nigeria Limited is a subsidiary of PW Group, a large international conglomerate with operations in both Africa and Europe. Currently, the PW Group operates in Nigeria, Ghana, Tanzania, Ireland, and the United Kingdom. PW Nigeria was established in 1974 by a group of Irish and Nigerian investors and has since become a dominant name in the industry. The company operates in all parts of the country, and is managed by a team from all over the world.

The core competencies of PW Nigeria are earthmoving, roads & bridges, water supply & sewerage, and commercial, residential, & office buildings. It is also a large supplier of asphalt and concrete to other companies in Nigeria.

Some of the past and current projects of PW Nigeria include the $104 million Ibadan Ilorin Expressway Section II (ongoing), the $14.8 million rehabilitation of the Lagos International airport (ongoing), the $24.4 million Abuja Water Supply project (completed 1996), and the $40 million rehabilitation and asphalt overlay of 700km of highway between Jos and Enugu in Nigeria (1999).

RCC Nigeria Ltd.

Reynolds Construction Company Nigeria Limited, RCC, was incorporated on 25 September, 1969, and started operation in the Eastern part of the country. It is a subsidiary of the Israeli company, Solel Boneh International Group, SBI, which is itself a member of the Housing & Construction Holding Co. Ltd., a large Israeli conglomerate. RCC's Nigeria headquarters is in the capital city of Abuja, and has more than 250 engineers, supervisors and administrative officers. The company has over 200 pieces of construction equipments worth over $100 million (RCC, 2006).

RCC Nigeria has completed many building and civil engineering projects in Nigeria with a combined value of more than one billion dollars. Some of the company's past projects include the $97 million Ibadan – Ife road dualization (1999), the $12.5 million Jos Bukuru Water Project (2000), the $58 million Ife – Ilesha road dualization (2002), and the $55 million Katampe district extension and infrastructure (2008).

CONSTRUCTION INDUSTRY & THE CAPITAL MARKET

The Nigerian Capital Market first became operational in 1961 with the opening of the Lagos Stock Exchange, LSE. However, following the recommendation of the Government Financial System Review Committee of 1976, the LSE was renamed the Nigerian Stock Exchange, NSE, and has since grown in size and importance among firms in the various sectors of the economy. The construction industry is yet to become very active in the Nigerian Capital Market with only a handful of companies listed in the Exchange.

Currently, only 8 construction companies are public listed companies in Nigeria: Arbico Plc., Cappa & D'Alberto Plc., Costain (WA) Plc., G. Cappa Plc., Dumez Nig. Plc., Julius Berger Nig. Plc., Impresit Bakolori Plc., and Road Nig. Plc. The overwhelming majority of the other companies are either limited liability companies, privately owned companies, or foreign companies that may or may not be public companies. In 2004, the combined contribution of all the companies to the turnover of the Nigerian Stock exchange was a mere 0.1% (Abdul-Rasheed, 2006). This will surely increase in the future as more companies become public.

GOVERNMENT'S ROLE IN CONSTRUCTION

In any given country, the government plays a significant role in the construction industry. Ideally the government's roles in the construction industry should be the following:

- **Develop the nation's human capital:** By providing quality educational services such as technical schools, and other educational institutions, the government could help immensely in the development of the construction industry within its borders. Currently in Nigeria, there is a general lack of quality institutions that are capable of graduating good students. For the few existing ones; there is the problem of inadequate facilities to ensure sufficient education for students.

- **Facilitate the access of companies to capital, technology, and factor inputs:** In order for construction companies to operate more efficiently, the government should help in facilitating access to capital, latest technology, and factor inputs such as construction materials, equipments, and labor.

- **Encourage activities of professional associations:** The government should facilitate the establishment of professional associations such as the Federation of Construction Industry of Nigeria and should consult with these associations on all major decisions that could potentially impact the industry.

- **Demand foreign companies to partner with local ones:** A big role that the government could play in developing local capacity is to require that foreign companies make a commitment to have local partners for projects in their countries. In addition to insisting that these firms partner with local firms for delivering projects, the government should also demand that the foreign companies train the local engineers and labor force, transfer their technical knowhow, and help in developing local capacity. Like the South Koreans did for their nuclear plants with Bechtel, and the Chinese are doing today with American companies operating in China, the Nigerian government should also ensure that foreign companies partner with local companies in order to transfer knowhow to local companies.

- **Streamline its process of procurement of construction services.**

OTHER PLAYERS

Besides clients, design firms, contractors, consultants, suppliers, financial institutions, and the government, there are other players that play important roles in the Nigerian construction industry. Some of these are highlighted below.

FOCI

The Federation of Construction Industry in Nigeria (FOCI), formerly the Federation of Building and Civil Engineering Contractors (FOBACEC), is an entity that consists of most of the major construction companies in the country. It was started in 1954 by a group of seven foreign construction companies, who saw the need for companies to unite in order to have a better influence on the direction of the industry. It was formed at a time when there was a lot of uncertainty about the future of the country with the increasing pressure on the British government to relinquish its rule over the country, which it eventually did four years later in 1960.

A few years after the establishment of FOBACEC, the leaders of the group realized that they needed to become stronger in order to have a louder voice. They realized that this could only be achieved through opening its doors to other companies, especially indigenous ones. As a result, the group started allowing other members to come into the picture. Today, its membership exceeds 200, most of which are local companies (FOCI, 2004).

Although the organization still has a lot of work to do to achieve its goals, its members comprise of the biggest companies in the country. It is estimated that some 60% of the total capital investments in the country are handled by the members of FOCI (FOCI, 2004).

Trade Unions

The Nigerian Labor Congress, NLC, is the nation's umbrella union that seeks to "protect, defend and promote the rights, well-being and the interests of all workers, pensioners and the trade unions; to promote and defend a Nigerian nation that would be just, democratic, transparent and prosperous and to advance the cause of the working class" (NLC). Several unions exist under the NLC that are specific to certain sectors of the economy. The unions that are concerned with construction workers are the National Union of Civil Engineering, Construction, Furniture and Wood Workers, the Steel & Engineering Workers Union of Nigeria (SEWUN), and the Nigeria Welders Association.

These unions are important in protecting the interest of both workers and their employers. They help with litigations in cases of emergency during work. For example, in 2006, a crane at one construction site in Abuja broke and killed six workers. However, no riots or litigations occurred since the company that employed them had a Collective Agreement with the National Union of Civil Engineering, Construction, Furniture and Wood Workers (NLC).

COREN

The Council for the Regulation of Engineering in Nigeria, COREN, is the regulatory body that regulates and controls the "training and practice of engineering in Nigeria and to ensure and enforce the registration of all engineering personnel (i.e. Engineers, Engineering Technologists, Engineering Technicians, and Engineering Craftsmen) and consulting firms wishing to practice or engage in the practice of practice of engineering" (COREN, 2003). COREN's role in the construction industry could never be overemphasized since they are charged with making sure that high standards are kept throughout the country in construction projects. Unfortunately, because the body lacks the resources to completely prevent unlicensed personnel from performing engineering tasks, many workers still operate freely without the appropriate licenses. Therefore, government must equip this agency with enough resources to enable them carry out their duties, which will help in moving the industry forward.

CHAPTER 5: EXAMPLE OF LARGE SCALE PROJECTS IN NIGERIA

In the past, most of the large scale projects were typically done by the government. While this remains the case even today, many large scale projects have been built recently or are currently being constructed all over Nigeria by both the government and the private sector. The majority of these projects are in the capital city of Abuja, which is a relatively new city. Due to the importance of Abuja to the Nigerian construction industry, chapter 6 of this thesis is dedicated to describing the "Abuja project." This chapter gives a brief overview of some of the large scale projects that are currently being undertaken throughout Nigeria, and some that have already been finished recently.

COMPLETED PROJECTS

Tinapa Resort

Tinapa Resort is a world class business and leisure resort in the southeastern state of Calabar. It was the first integrated resort of this magnitude in Nigeria and was delivered with Public Private Partnership between the Calabar state government and private investors. The first phase of the project was completed in April 2007, with the remaining three phases slated for the immediate future. The project was contracted to Julius Berger Nigeria Plc., and was completed for a total project cost of about ₦45bn ($350 million). The resort offers such services as retail, entertainment, casinos, exhibition center, movie production studio, movie cinema, an artificial lake, and a hotel. Figure 7 shows a picture of the Tinapa Resort in Calabar State.

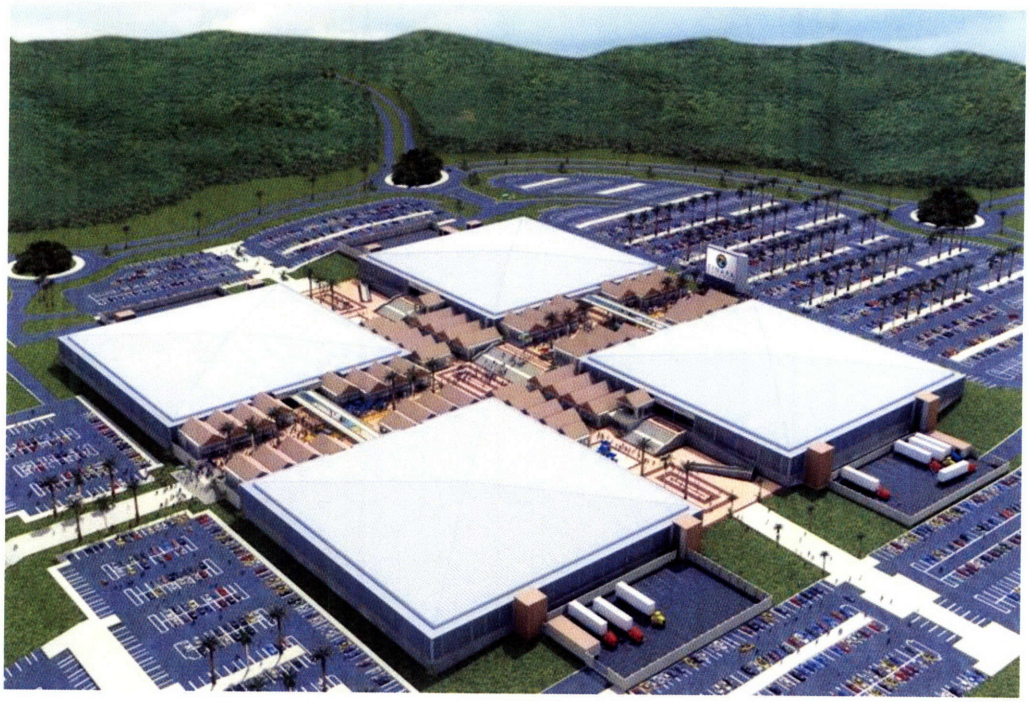


Figure 7: Tinapa Resort, Calabar (Maimo, 2007)

Nigeria Liquefied Natural Gas Plant

The Nigeria Liquefied Natural Gas Plant located in Bonny Island in the southern state of Rivers is a Gas Plant that is owned by Nigeria LNG Limited, a joint venture between Nigerian National Petroleum Corporation (49%), Shell (25.6%), Total LNG Nigeria Ltd (15%) and Eni (10.4%). The project consists of several phases that were completed at different times over the last decade.

The first phase of the plant consisting of Trains 1 and 2 was completed in 1999 at a cost of about $3.6 billion. This phase of the project was financed by the shareholders according to their respective proportions. It was built by a consortium of engineering firms comprising Technip, Snamprogetti, MV Kellogg and Japan Gas Corporation (TSKJ). Train 3 was completed in November of 2002 at a cost of $1.8 billion. Trains 4 and 5 of the project were finished in 2005 at an estimated cost of about $2.1 billion. This phase was financed by loans from both international and local banks. The completion of Train 6 of the project in 2007 made the NLNG Plant the largest in the

world. Like Trains 1 and 2, trains 3 through 6 were also constructed by TSKJ. "The Nigeria LNG Plant has an overall capacity of some 18mtpa of LNG and 3.4mtpa of LPG. It requires 2.8bcf/d feed gas intake at full production" (Hydrocarbons-technology.com, 2007). A picture of a section of the Nigeria LNG plant is shown in Figure 8.

Figure 8: Nigeria LNG Plant in Bonny Island (NLNG, 2008)

Dangote Cement Factory

The Obajana Cement Factory is located in Obajana, Kogi State, in the southern part of the country. The first phase of the project has a combined production capacity of about 4.4 million metric tons per annum (mtpa), and includes a 135 MW captive gas power plant, a 94 km gas pipeline, a limestone quarry with associated 7.5 km conveyor belt, a 13m high dam impounding a

reservoir with a total storage capacity of 5.1 million m^3, and an over 300 unit housing complex for staff.

The project was completed in 2006 by Julius Berger Nigeria Plc., and cost an estimated $800 million. It was financed in part from the owner's equity and in part with loans from International and local financial institutions. The owner of the factory is Dangote Group Ltd, the leading Nigerian conglomerate. The figure below shows a picture of the Obajana Cement Factory.

Figure 9: Obajana Cement Plant (Alec, 2006)

National Stadium in Abuja

The National Stadium located in Abuja is one of the largest stadiums in Africa. With a capacity of 60,000 spectators, the stadium was completed in 2003 at a cost of about $360 million. The stadium was also built by Julius Berger Nigeria Plc. It has a lightweight concrete roof covering all

the seats, and is located in a strategic location in the city of Abuja close to the central business district. Below is a picture of the completed National Stadium.

Figure 10: Nigeria National Stadium (Julius Berger, 2004)

Malaysian Gardens

The Malaysian Gardens Housing Project in Saraji District in the capital city of Abuja is a massive project having over 14 thousand housing units that is being developed by the Federal Capital Development Authority, FCDA. According to Mr. James Wong Po Kwan, the managing director of the handling firm of the project, the project "offers six choices of residential units, ranging from affordable/stylish apartments to luxurious terrace and semi-detached houses, high-

class exclusive single storey and double storey bungalows" (Thisday, 2008). The handler/developer of the project is Global Formworks Nigeria Ltd, which is collaboration between Malaysian and Nigerian entities. The project is being built at a whopping cost of $600 million, and would be sold at affordable costs to Nigerians. Construction is currently underway, and the project is expected to be completed in 2010, when about 70,000 – 100,000 people will call the new district their homes. A plan of the entire development is shown in Figure 11 below.

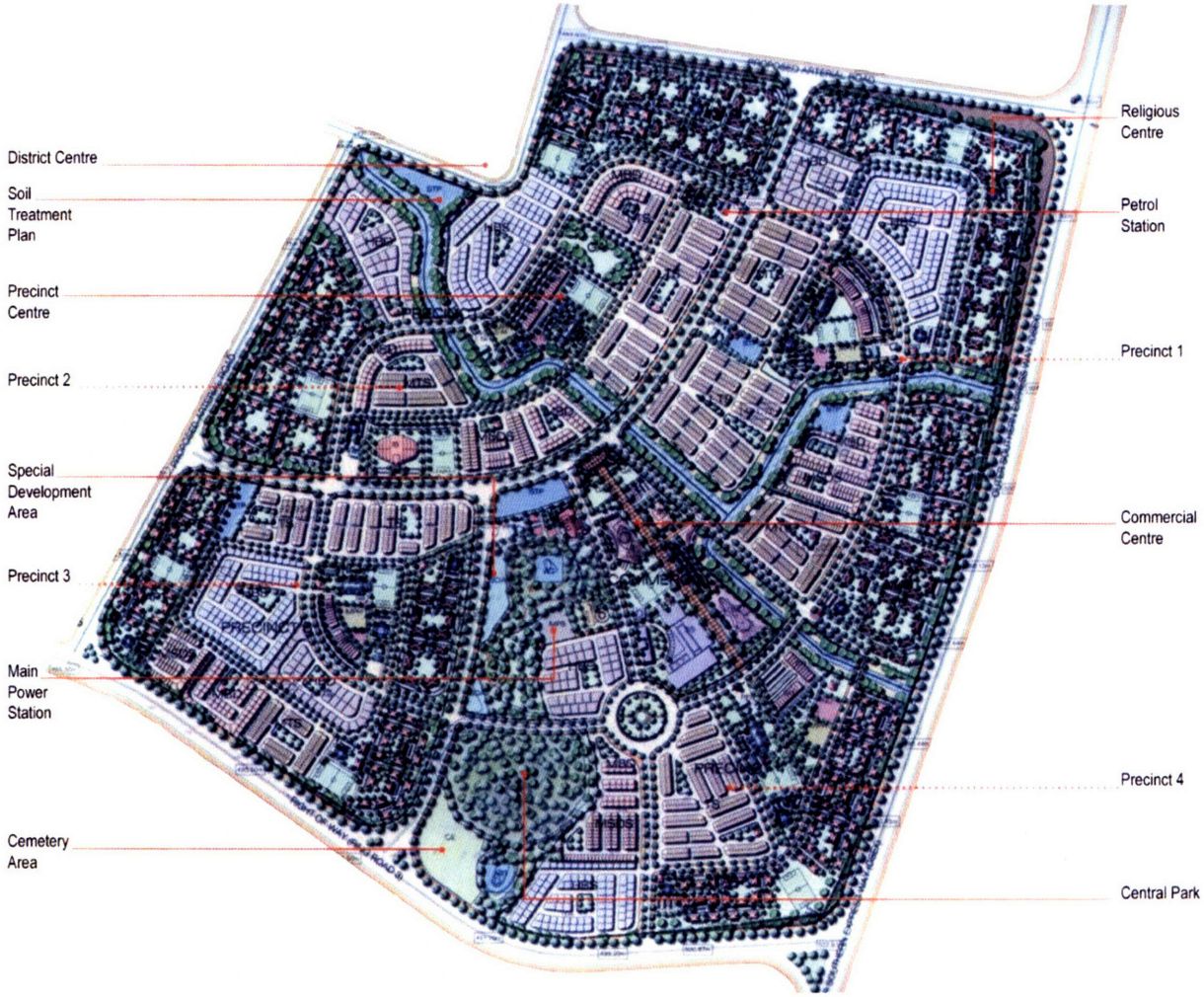


Figure 11: Malaysia Gardens (Jasmak Products, 2008)

PROPOSED PROJECTS

If the past decade was very good for construction companies due to the availability of a large number of projects throughout the country, and especially in the capital city, the next decade seems even better. Some of the mega projects that are currently in their early stages of development include the following.

Lagos Megacity

Since the relocation of the Nigerian capital city from Lagos to Abuja in 1991, Lagos has not seen relatively large scale infrastructural investment. However, the current government of the state has proposed plans to invest heavily in improving the dilapidated infrastructure of the city. The plan involves several phases that would make Lagos one of the largest Mega cities in the world by 2015. Some of the projects included in the proposal include:

- Construction of a light rail system in the city to facilitate transportation
- Construction of 10,000 flats in the Lekki Peninsula
- Expansion of the Lagos-Badagry Expressway into an eight-lane expressway, which will help with trans-west African transportation
- Construction of an Eco Atlantic City on the waterfront, etc

The Stratosphere

The Marketing and sales overview report for this project described it as "the tallest building in Africa, a unique and ultra luxury 5-Star hotel and apartment residence in the most exclusive and picturesque location in Nigeria, comprising 336 hotel suites and 368 apartments offering panoramic sea views" (Brookview International). The image below shows the initial architectural rendering of the building.

Figure 12: The Stratosphere, Lagos (brookview international, 2006)

Abuja Technology Village

The Abuja Technology Village is a mega project that is currently being planned in the outskirts of the city of Abuja. The village will serve as a hub for most information technology, pharmaceutical, and bio-technology related businesses and research in Nigeria, like the Silicon Valley is to the U.S. The development consists of several buildings, bridges, and roads designed to provide a world class city that fosters collaboration among the inhabitants of the village. Currently,

only the infrastructure project has been started and is being done by Gilmore Construction Company. The Abuja Technology Village will also house the proposed new African Institute of Technology.

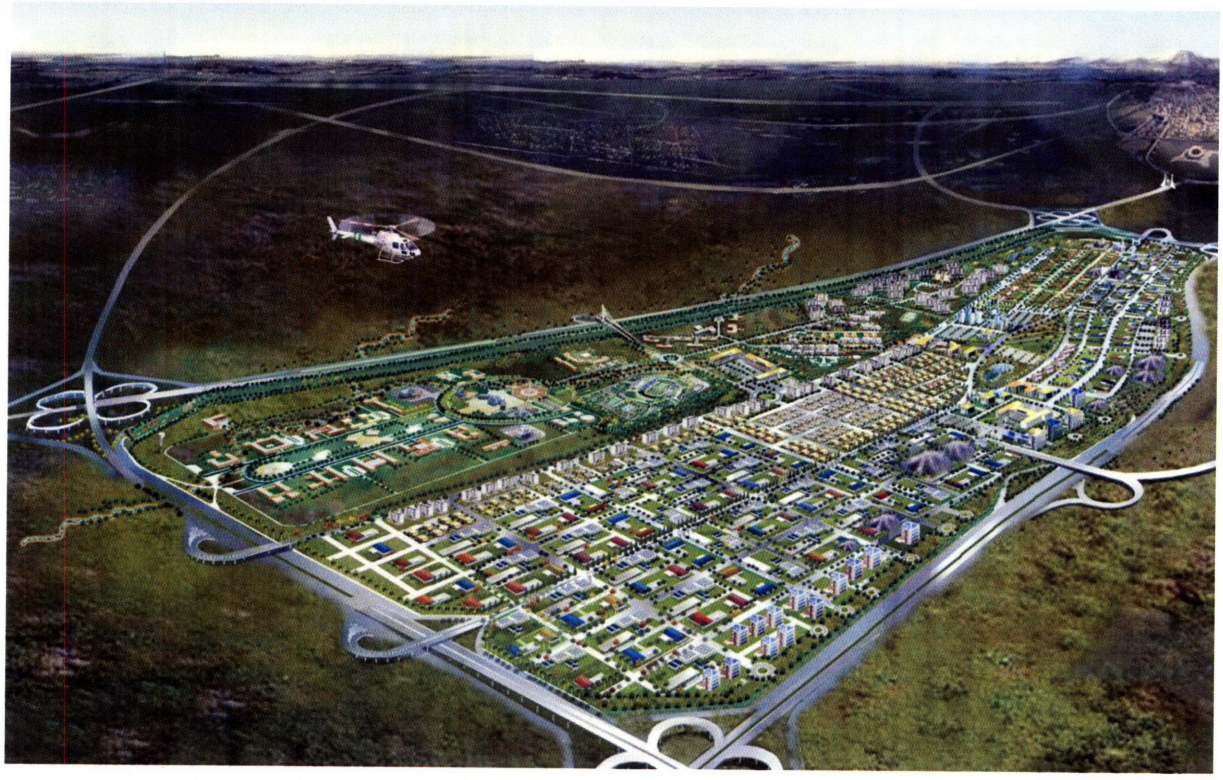


Figure 13: Plan of the Abuja Technology Village (AIM Consultants, 2008)

Nigerian Railway Expansion Projects

Among the most ambitious projects that are currently being discussed in Nigeria is the expansion and modernization of the existing railway infrastructure within the country. The current condition of rail transportation in Nigeria has already been discussed in chapter 2 of this thesis. In order to reduce the cost of transportation of goods and people within Nigeria, decrease the traffic on the roads, and also to further unify the nation, rail transportation infrastructure must be improved.

The expansion project consists of two phases: Phase I and Phase II. Phase I links the southern city of Lagos to the northern city of Kano, while Phase II of the project links the southern city of Port Harcourt to the central city of Jos. The contract for the completion of Phase one of the project was signed by the former government of Olusegun Obasanjo in 2007. According to Obasanjo, "phase I is scheduled to be completed in four years at a cost of $8.3 billion of which $2 billion is being obtained as soft loan from the Chinese Government. Phase II, which will be the second spine of the backbone- Port Harcourt to Jos, with the same design criteria, will follow on the heels of Phase I" (Idonor, 2006).

The expansion of the rail infrastructure promises to create a significant amount of work to many Nigerians and further help the development of the economy.

CHAPTER 6: PROJECT ABUJA

Abuja, the new Federal Capital Territory of Nigeria is definitely one of the largest ever projects that have been undertaken. As claimed by Omar Take, "on paper, Abuja is the largest project of this century. Whether it will be realized in this century is another thing, but one must remember that, once founded, it took the new cities of the past centuries to develop, and I think Abuja will be no exception" (Take, 1984). Already regarded as one of the better planned cities in the world, the city of Abuja is not just a single building, or a stretch of road, or even a multi-use development of a single plot of land, it is a project to deliver a completely new and modern city that would be home to over 3 million Nigerians. Like Brasilia and Canberra, in Brazil and Australia, respectively, Abuja was essentially started from "scratch."

From among 33 possible locations that were shortlisted in the mid 1970s, the relatively unknown kingdom of Abuja was chosen on February 4, 1976 to become the site of the proposed new capital city of the Federal Republic of Nigeria. The main criteria used in choosing Abuja as the new capital city, as cited by the committee charged with searching for the new capital city included, but not limited to; its centrality, ethnic and religious neutrality, land availability and use, favorable climate, proximity to water sources, multi-access possibilities from other parts of the country, existence of resources, good soil conditions, and physical planning convenience. Once the choice was made, the Federal Capital Development Authority, FCDA, was set up and tasked with "building and administering the new Federal Capital...Constructing and managing the roads, railways, sidings, tramways, bridges, reservoirs, water courses, buildings, plants and machinery and such other works as may be necessary for, or conducive to the discharge of its functions in light of Decree no. 6, 1976," which established it (Julius Berger, 2006). Thirty two years later and after billions of dollars spent, today, the city of Abuja is a sprouting city with most features of a modern twenty first century city.

The need to relocate the seat of the federal government of Nigeria from the then capital city of Lagos to Abuja was necessitated by the obvious population pressures, and the political and

religious divisions, which made Lagos inhomogeneous and inappropriate to remain as Nigeria's capital. Located in the southwest part of the country and constrained by the gulf of guinea, Lagos was populated by a predominantly Christian population, mostly from the Yoruba ethnic group. Since Nigeria was comprised of at least 250 other ethnic groups, and also because the other half of the population was predominantly Muslims, there was worry that keeping the capital of the country in a region that was predominated by one group could cause problems in the future. Hence, a more homogenous, centrally, and ethno-religiously neutral city would better represent the image of the country. The new capital city of Abuja was designed to be the "center of unity," that would unite all the different cultures and religious groups that live in different parts of the country.

Figure 14: Map of Nigeria showing the locations and distances of major cities

Figure 14 shows the distances between Abuja, the new capital, and other major cities within Nigeria. As can be seen, the location of Abuja is truly in the center of the country, thus, making it more neutral and accessible to all Nigerians. As best put by the former minister of Abuja, Nasir El-

Rufa'I, "Abuja of today has provided all Nigerians equal access, equal citizenship, a functional city and a platform for national economic development, among others." (Julius Berger, 2006).

THE ABUJA MASTER PLAN

The Abuja master plan is a flexible conceptual plan of the city taking account of its anticipated growth. Originally conceptualized and designed by the Japanese Architect, Kenzo Tange, in collaboration with three other Nigerian architects representing the three dominant ethnic groups, the Federal Capital was thought to be solely an administrative city; no effort will be made to grow activities in other economic sectors. The master plan calls for a city that is centrally oriented around the three arms of government; executive, legislative, and judiciary. It represents a city designed to grow linearly along two fingers as seen in Figure 15.

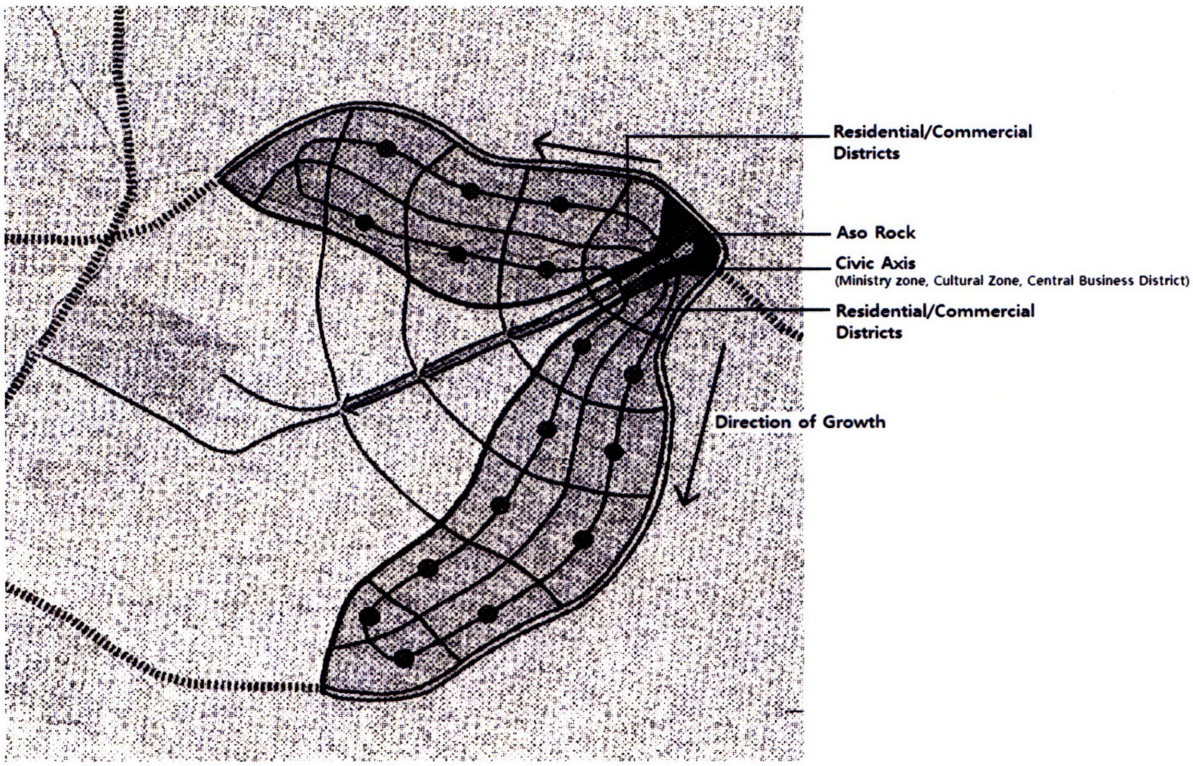


Figure 15: Abuja master plan showing proposed growth pattern (Take, 1984)

Figure 15 shows the original concept of the complete Abuja master plan as envisioned by Tange. It shows how he envisioned the growth pattern of the new city; it would grow outwards linearly away from the three arm zone on both sides of the central area. The development of the city is divided into several phases to be completed as it expands with time.

At the center of the plan is the Aso Rock, which is a very dominant feature in the landscape of Abuja, and serves as the background of the three arms zone. Moving along what is known as the "Civic Axis" from the three arms zone are the ministry area, the cultural zone, and the central business district. Flanking the Civic Axis on both sides are several residential and commercial districts. All the various districts are connected by a network of major and minor roads that are designed to reduce future congestion in the capital. The next few sections summarize some of the major developments that have occurred in the city over the past three decades.

ABUJA DISTRICTS

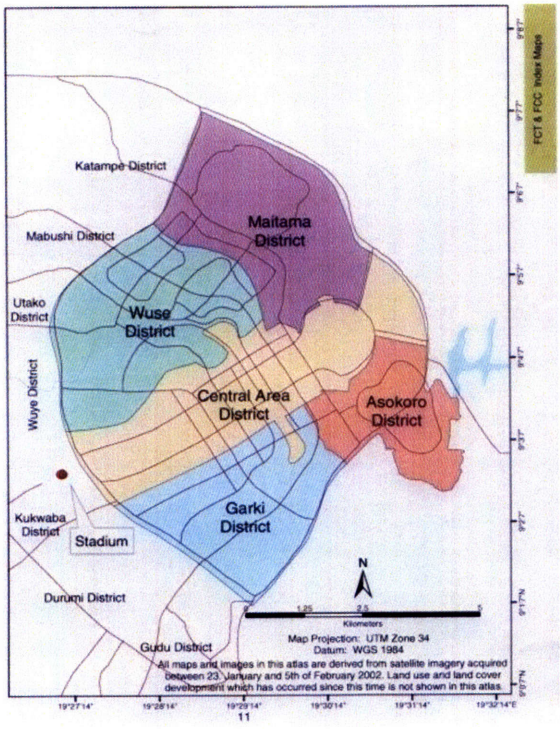


Figure 16: Inner ring of Abuja showing five Districts (Akinyede, 2004)

As mentioned earlier, the capital city was planned in different phases of development and divided into several districts. The major districts in the initial phases of development are shown in Figure 16 to the left and further highlighted in detail in Figure 17 through Figure 21.

Figure 16 shows the inner ring of Abuja city. It contains the five main districts that comprise phases 1 and 2 of the Abuja project. The entire infrastructures within these districts have already been constructed and people have since moved into the buildings.

Central Area District

Figure 17 shows the Central Area District that was developed first beginning in the 1980's. It contains the three arm zone, which houses the Supreme Court, the Presidential Villa, and the National Assembly. It also contains the Civic Axis that includes the ministry area, cultural zone, and the central business district.

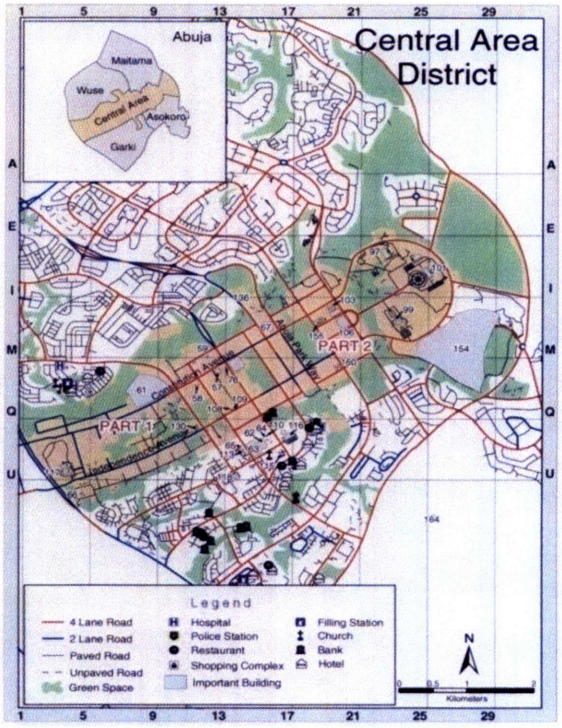


Figure 17: Central Area District (Akinyede, 2004)

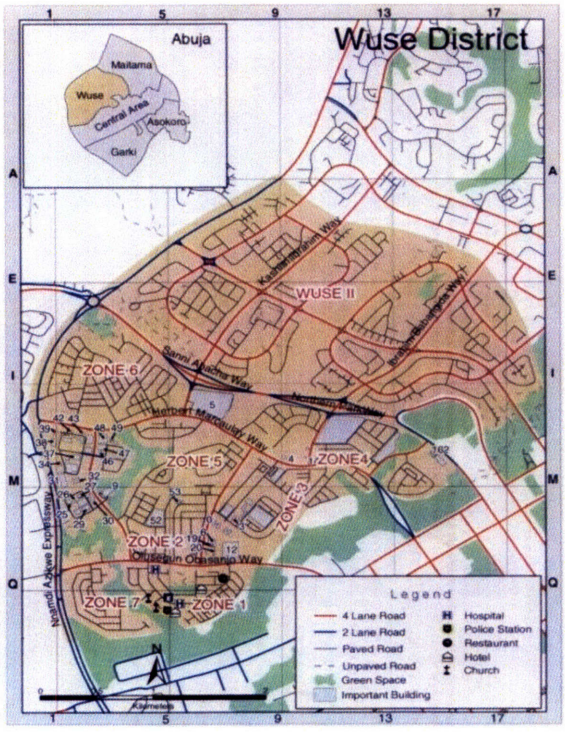


Figure 18: Wuse District (Akinyede, 2004)

Wuse District

Wuse District is one of the major residential districts in the city located to the north west of the city. The city's major market, the Wuse Market, is among the major attractions in Wuse District.

Maitama District

Maitama District is the other major residential district that is located to the north east of the city's inner ring. It is a high end residential area but also contains most of the foreign embassies and mission offices located in Abuja.

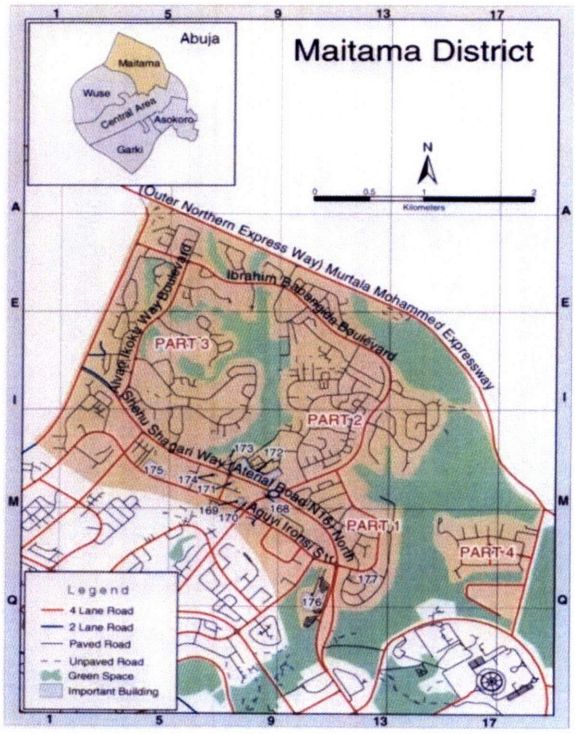


Figure 19: Maitama District (Akinyede, 2004)

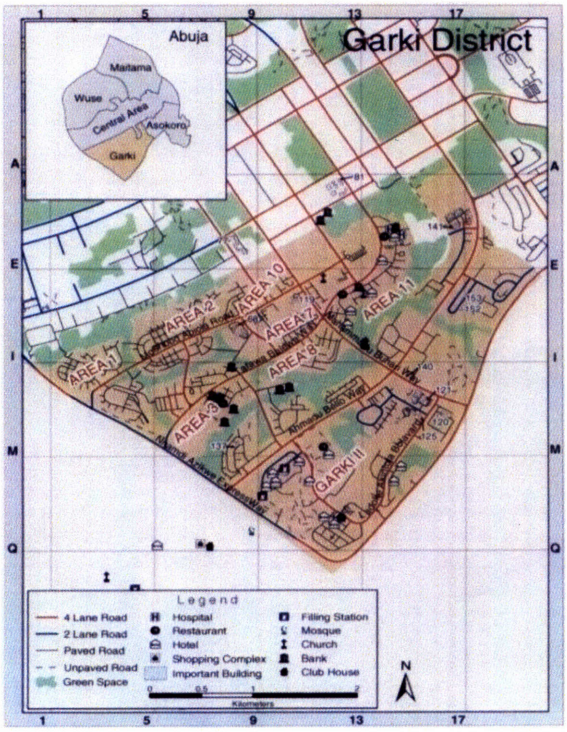


Figure 20: Garki District (Akinyede, 2004)

Garki District

Garki District is located in the southern tip of the city. It is also the most densely populated part of the city with many low to middle class areas. Among the famous structures in Garki are the Federal Secretariat and International Conference Center.

Asokoro District

Asokoro District is another high end residential district that is located very close to the presidential villa. It houses most of the state lounges present in Abuja. Among its noticeable structures is the ECOWAS secretariat.

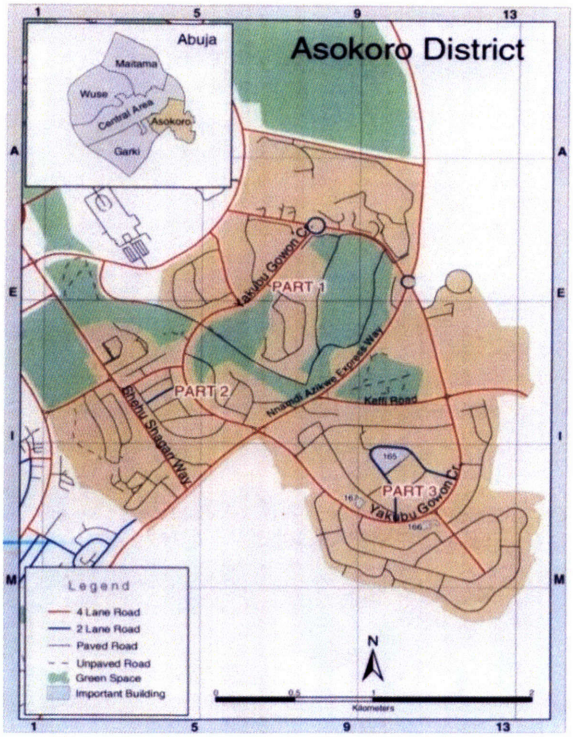


Figure 21: Asokoro District (Akinyede, 2004)

ABUJA DEVELOPMENT TIMELINE

The development of the city of Abuja did not just happen overnight. In fact it took several years of planning and construction to reach the state that the city is currently in. This section presents a timeline of how the city evolved over time, and the major projects that were accomplished within certain periods of time.

1976 – 1983

In 1976, Decree no. 6, the Federal Capital Territory Act, demanded the creation of a new capital city for Nigeria. The period between 1976 and 1983 entailed the search for the new city and the initial phase of its design. Throughout this period, only construction workers occupy the new city since Lagos was still the capital city and there was very little economic activity in Abuja. The major infrastructure and building contracts that were completed during this period include the following:

- Wuse I Distruct
- Garki I District
- Ring Road 1
- Expressways (ONEX, OSEX)
- Airport Road
- Jabi Dam
- Presidential Complex

1983 – 1991

In this period, the city of Abuja was visibly transformed from a forest-like area into a fledgling city. An initial burst in construction was witnessed just before the 1986 ECOWAS conference, which was held in the city despite the fact that the government was still based in Lagos. Also most of the ministry buildings were constructed during this period. Some of the major projects that were completed during this period include:

- Maitama District
- Wuse II District
- Garki II District
- Asokoro District
- Central Area I and II
- FCDA Secretariat, ICC Conference Center, ECOWAS Headquarters
- Hilton and Sheraton Hotels
- National Mosque
- Three Ministries and the Presidency
- Domestic Airport

1991 – 1998

The period between 1991 and 1998 is when the most change happened to the city of Abuja. The federal government officially relocated on Dec. 12th, 1991, to be shortly followed by other agencies and the general public. Work continued on the construction of access roads in all the major districts in the new city and many residencies were constructed especially in the completed districts. The major projects that were completed during this period are:

- Jabi District
- Asokoro District extension
- Gudu District I
- National Assembly Phases I and II
- Two Ministries
- International Airport Terminal C and Hospital
- Supreme Court

1998 - 2008

The city of Abuja continues to expand up until today. Many buildings including residential, commercial, and office buildings continue to fill the Abuja skyline. Several large scale development activities also continue to be built. By 2000, many illegal buildings have been constructed against the stipulation of the Abuja master plan. Between 2003 and 2007, the government of Olusegun Obasanjo undertook a serious operation of cleaning the city: several buildings were demolished that do not conform to the Abuja master plan. Some of the projects that were completed in this period include:

- Utako District
- Katampe District extension
- Guzape District
- Games Village, and the National Stadium
- International Airport Terminal B+D
- CBN Headquarters
- Abuja Cathedral
- Eagle Square, and the Police Headquarters

The relocation of the capital city of Nigeria from Lagos to Abuja has indeed helped in the growth of the construction industry. Several billions of dollars have already been spent in bringing the city to life. The next chapters of this thesis focus on the problems and opportunities that exist in the Nigerian construction industry

CHAPTER 7: CONSTRUCTION INDUSTRY PROBLEMS

Like all other sectors of the Nigerian economy, the Nigerian construction industry is also faced with many problems. Most of these problems are not unique to Nigeria, but some are definitely more exaggerated in the country.

UNETHICAL PRACTICES

Several unethical practices in the Nigerian construction industry have been recorded by many researchers. The problem of corruption is a major detriment to the development of the industry as it prevents competition among players in the industry. According to O. E Alutu of the University of Benin, the most common of these practices in the Nigerian construction industry are (Alutu, 2007):

- *Vital information leaked to contractors after paying bribes*
- *Inclusion of "kickbacks" in tender*
- *Ignoring of excessive prices by officials due to vested interests*
- *Forwarding bids having officials' interests built in*
- *Allowing multiple subcontracting of a project, and*
- *Assurance of winning bids given to contractors well in advance of the bidding process*

While these problems are common in other countries, their prevalence in Nigeria is alarming. The government has embarked on a very ambitious program of fighting such practices in the country through the activities of the Economic and Financial Crimes Commission, EFCC, and the Independent Corrupt Practices and Other Related Offences Commission, ICPC. Over the last few years, significant progress has been made within the government itself; however, their impacts on the construction industry and other sectors of the Nigerian economy cannot be accurately determined as of yet.

In order to rectify the situation, Nigerian schools must add learning sound ethical practices to their curriculums so that students could learn from schools what to do and what not to do during their careers. Also, the government must ensure that corrupt officials and others found guilty are punished appropriately. On their part, the construction companies must abstain from seeking any form of advantage during the tender process through paying bribes and including "kickbacks" in return for winning contracts.

LACK OF SKILLED MANPOWER

It is believed that the "lack of adequate and skilled manpower has been continually responsible for Nigeria's poor and tottering showing economically, and that it also contributes in no small measure to the high rate of unemployment and other related problems in the country" (Idehen, 2008). The number of graduates from Nigerian universities is very small relative to the demand for skilled labor in the country. In addition, among the few that graduate every year, most tend to lack the necessary skills needed to join construction companies and immediately contribute meaningfully to the execution of projects. According to the governor of the Central Bank of Nigeria, Prof. Charles Soludo, "more than 70 per cent of Nigerian graduates were not only unemployable, but that they also lacked basic skills to make them 'trainable" for skilled employment" (Idehen, 2008). This lack of local skilled manpower in the country is one of the biggest problems confronting the construction industry.

Many of the large companies seek skilled manpower from elsewhere in order to fill the gap. This immensely adds to their operating costs and shrinks their profit margins. This is mainly because they have to pay the foreigners higher salaries than local workers, they must provide quality housing and security for the foreign workers, and they must take care of their other needs such as healthcare at additional costs.

This issue of the lack of skilled manpower in the country is one that the government must confront if they are to enhance the growth of the Nigerian construction industry. The government must improve the education sector of the economy so that students receive quality education that

is comparable to what foreign students obtain. On their part, the construction companies should give local students the chance to prove themselves instead of seeking skilled labor from outside at higher costs.

UNAVAILABILITY & HIGH COST OF MATERIALS

The unavailability of some basic materials in Nigeria increases the cost of construction since many of the materials have to be imported into the country. In most cases, the locally manufactured materials have relatively higher costs compared to the costs in other countries. Also, for the majority of materials, the local supply is almost always less than the demand, hence requiring importation of the difference to fill the gap.

For example, the estimated demand for cement in Nigeria is much higher than the amount being manufactured locally by almost a factor of two. This pushes the cost of cement higher in Nigeria than in many other countries. As for steel, most of the steel used for construction in the country is imported since the local steel plants are incapable of meeting the demand for the product. In addition, some special materials, which are only available in a few countries, such as some special types of cement, chemicals, paints, and other materials, have to be brought into Nigeria at higher costs to consumers. This is a significant problem for the Nigerian construction industry, which must be addressed.

In order to rectify the situation, the government must encourage investors to invest in companies that would produce enough materials to at least meet the local demand and even export to other African countries. This could be done through the provision of incentives that would make such investments viable. The government could also increase the tariffs on imported construction materials in order to encourage local manufacture of the materials.

UNSTABLE PRICES OF MATERIALS

Prices of basic construction materials such as cement and steel often fluctuate significantly in Nigeria. For example, whenever there is a problem with one of the cement plants in the country, which further widens the gap between the demand and supply of the product, the price of cement rises significantly. Since some contracts are contracted on a fixed price basis, this causes significant problems to companies since their costs would turn out to be higher than they had earlier anticipated.

POWER PROBLEMS

The power problem in Nigeria is a well documented problem that significantly affects the country's growth potential in all sectors of the economy. The estimated current electricity demand for Nigeria is about 10,000MW. However, the country is only able to produce and transmit only a fraction of this, hence, causing problems throughout the various sectors of the economy. In the last 8 years alone, it has been reported that the government has spent more than $16 billion to build new power plants that would be enough to generate power for the country. However, Nigeria is yet to see any benefits from such investments.

The lack of electricity from the national grid forces individuals and companies to rely heavily on using personal generators to produce electricity for various uses. Due to the heavy demand for electricity in construction activities, many companies spend a significant amount of money buying generators and fuel to power the generators. In addition, since construction sites are often in remote areas, these companies need to transport the generators to the construction sites, which further causes significant problems to the companies.

In order to rectify the situation, the government must declare a state of emergency in the power sector. Nigeria's economic progress depends on having enough electricity to power its economic engine. Also, money must be spent on transmission infrastructure so as to transmit the generated electricity to the points of use.

INCOMPETENT COMPANIES WINNING BIDS

A major problem in the construction industry in Nigeria is the fact that so many projects are usually contracted to incompetent companies, whose main objectives are to win the contracts and make money, but they lack the capacity to handle such projects. Some of these incompetent companies often are foreign companies who come into the country, bid very low on projects in order to win them, and then run away after receiving part of the contract sum. This causes a lot of abandoned projects all over the country.

In order to address the issue, clients must prescreen bidders and make sure that only competent companies enter the final round of bidding. Also, officials found giving contracts out to unqualified companies must be investigated for vested interests in those companies and if found guilty must be punished accordingly.

DISLOYAL EMPLOYEES

The presence of many disloyal employees in construction companies across Nigeria puts a significant amount of stress on the management of such companies. Many employees are known to steal construction materials brought to site and sell them for personal profits. Frequently, things such as uniforms, steel rods, cement, and equipments given to workers for use on the job disappear from construction sites. In addition, drivers of company vehicles often empty their fuel tanks once out of sight and sell the fuel in the black market. This is a serious issue that causes immense problems to companies by significantly increasing their operating costs.

According to Abdulkadir Dantata[6], the chairman of Dantata & Sawoe Construction Company Nigeria Limited, the biggest problem with the construction industry in Nigeria has to do with the presence of many disloyal employees. He added that companies could easily reduce costs by up to 20% if this issue does not exist.

[6] Conversation with Alh. Abdulkadir Dantata on May 3rd, 2008

In order to tackle this issue, management of construction companies must enforce strict laws regarding the theft of materials from construction sites. They must also punish any employee found to be involved with such activity. In addition, they need to make sure that materials and equipments do not lay idle in construction sites for periods that they are not needed. Materials and equipments should only be brought to site when needed.

FINANCING PROBLEMS

A major problem for companies in the Nigerian construction industry is the problem of finance. Unless companies are large enough and have sufficient money in hand, or are given a large percentage of the contract fee upfront, often companies need to borrow money from banks in order to execute projects, before they later receive payment from the clients. In Nigeria, however, it is very difficult to borrow money from banks. Even when the loans are secured, the interest rates on them are very high, often as high as 20%. This prevents many companies, especially smaller ones, from being able to borrow money in order to execute projects.

An effective remedy for this problem is for government to establish construction banks, whose main objective is to finance construction projects. The banks would provide cheap loans to construction companies so as to enable them finish projects on time, and prevent them from borrowing money from conventional banks at high interest rates.

DELAY IN PAYMENT BY CLIENTS

One of the major reasons why many companies go out of business in Nigeria is the lack of on-time payments by clients, especially the government. For example, whenever there is a change of government, the new government often defaults on the payment of jobs given by the previous government, hence, causing significant problems to the companies that are expecting payments. Large companies are usually able to handle the situation, and often write-off some of the money that they are owed. However, small companies are unable to survive. In order to enhance the growth of the industry, government and other clients must pay for jobs completed on time and compensate companies whenever they default in doing so.

INCOMPETENT ENGINEERS

Many practicing engineers in Nigeria are not licensed by the appropriate licensing agencies. As a result, many buildings are not built according to the required standards as prescribed by the codes. This causes some serious problems because whenever something bad happens during or after construction, like the collapse or failure of some building or structure, no professional engineer could be found who is responsible. This problem is more visible in the informal sector of the construction industry, where people build based on their gut feelings.

FREQUENT SOCIAL TENSIONS IN THE COUNTRY

Often companies win bids for jobs, receive part of the payment, but face unplanned delays due to tensions in the areas of the work. This is particularly a big problem in the Niger Delta area, where foreign workers are often kidnapped and released only upon the payment of ransom to the captives. This significantly causes delays in construction activities, and adds to the cost of construction in those regions since companies have to budget for security in case of an eruption in violence around their work sites.

CHAPTER 8: CONSTRUCTION INDUSTRY OPPORTUNITIES

While there are many problems with the construction industry of Nigeria, there are also a significant amount of opportunities. Given the amount of positive changes that have occurred in the Nigerian construction industry and perhaps to the overall economy of the nation over the last few years, together with the indications of the continuation of this positive momentum, one may find a number of areas that present immense opportunities for both already established companies in the industry and new comers to the industry. This chapter presents some of the areas that companies and individuals could tap into in order to potentially make significant profits.

ICT SERVICES

ICT stands for Information and Communications Technology. "In other words, it can mean almost anything that is new and relevant to communications. This includes the Internet, mobile telephony, satellite communications and digital television over cable or aerials" (IAB). The state of ICT use in Nigeria has improved dramatically over the last decade. Even though the rate of use of ICT is lower than in many developed countries, the future potential of ICT use in Nigeria is very bright. From a 2005 study by Adebayo A. Oladapo, a lecturer at the University of KwaZulu-Natal, of 136 entities including construction firms, AE firms, academics, and quantity surveyors, the following conclusions could be drawn:

- The level of use of computers in Nigerian construction industry is very high. About 98.5% of the respondents of the survey use some form of ICT
- The usage of ICT in Nigeria is still in the rudimentary stage, i.e. computers are mainly used for performing basic tasks such as word processing, and email services, as opposed to developed countries where the use of ICT has evolved to more advanced stages for performing more technical business functions

- The most important factors determining the level of use of ICT in Nigeria are the attitude of CEO/Senior manager towards technology, the type of work that the firm does, the years of computer literacy of the workers, and their years of professional experience
- The major constraints to the use of ICT in Nigeria include but not limited to: inadequate/erratic power supply, high cost of hardware and software, lack of sufficient jobs, fear of virus attacks, high rate of obsolescence of software/hardware, and the high cost of employing computer professionals.

As we can see from such study, there are immense opportunities for both existing companies to tap into the ICT sector in order to improve on their effectiveness, but more importantly, there is room for entrepreneurs to enter into the market and provide some more advanced ICT services. Some of the opportunities that are available in this sector of the Nigerian construction industry include the following:

- **Provision of ICT learning centers for construction workers:** This could be in the form of a part time educational program for workers specifically in the construction industry. The curriculum would include such programs that are beneficial to the construction industry, such as project management applications, costing and scheduling software, e-conferencing tools, e-tendering, etc. Since many of the workers in construction companies in Nigeria lack advance computer literacy, this center would exactly cater for their needs.

- **Website creation and management:** In many developed countries, websites are used highly for communication between clients, companies, and potential customers. Since many of the construction companies in Nigeria currently do not use websites for marketing and other communications, entrepreneurs could tap into this sector and start website creation and management companies that would help in creating and managing websites for construction companies.

- **Software support business:** Important software that are being used currently in the construction industries of developed nations such as Primavera, AOL, and oracle are not

very popular in Nigeria due to a number of reasons. These include the high sophistication of such programs, lack of advance computer knowledge of workers, and more importantly, the fear that something could go wrong with such applications. This creates opportunities for entrepreneurs to start offering support services for companies that wish to use these programs.

EDUCATIONAL SERVICES

As mentioned earlier, the lack of highly skilled workers in the Nigerian construction industry is a major problem for the industry. Most companies often spend a significant amount of money in recruiting and training well qualified workers, which is often straining to management. This creates opportunities for entrepreneurs to provide short post-graduation programs that would prepare students for work in the construction industry. This would basically replace or shorten the in house training that companies often give graduates before they start getting more responsibilities. The way this could work is very simple:

Upon graduating from college or high school, students enroll in the short (6 – 9 months) program to learn basic skills that are relevant to the work they would be doing in the construction industry. Companies could then track the progress of certain students and could recruit from such training schools at less cost to them. This way, new recruits would come into their companies with the basic knowledge that they need in order to thrive in their new jobs.

SUBCONTRACTING SERVICES

A subcontractor is a company or individual that is hired by a general contractor to perform part of the job. This generally leads to a more efficient system since companies are able to specialize in what they are able to do best. This also potentially creates significant cost savings for the general contractor, and a reduction in project risk to them. The subcontracting sector of the Nigerian construction industry is not yet fully operational as in most developed countries. As a

result, there are several areas in which entrepreneurs could enter into the construction industry as subcontractors. Some of these are explained below

- **Specialty Construction & MEP:** Specialty Construction & MEP subcontractors offer services such as building, electrical, mechanical, formwork, and plumbing, to general contractors. In Nigeria most general contractors handle all these parts of the project themselves. However, if they could rely on others to take part of the job, they could potentially save time, spend more time on other important things, and focus on what they do best. Also, they could significantly decrease the risk on them.

- **Materials Supply:** Many of the big construction companies in Nigeria control their materials procurement methods. For example, Dantata & Sawoe produces, in house, such materials as concrete blocks, precast elements, concrete, and aggregate. However, they would be more efficient if they could stop the manufacture of such materials in house and sub contract them to other companies. Since the company is involved with a wide range of projects, often some machines remain idle for long periods of time, which is a very inefficient way to keep such machines.

- **Equipment Rentals:** This is also another area that entrepreneurs could tap into in the Nigerian construction industry. Like with materials procurement, many of the big companies purchase their own equipments and use them whenever they need them. When they do not need them, these machines remain idle in their yards. This is not an efficient way of using such machines. Equipment rental business is the solution to this problem. If construction companies can hire machines when they need them, they could potentially save a significant amount of money, unless they use such machines very frequently, in which case, purchasing the machines would make more sense. Also, small companies who could not afford investing in these machines could be able to rent machines and use for jobs. This could help in developing some of the smaller companies and keeping them alive.

While there are immense opportunities in the subcontracting sector, there is a major reason why this has not yet been developed in Nigeria. The biggest reason is the unreliability of the few existing companies. According to Dr. K.P.R Chaudhuri, the technical director of Dantata & Sawoe Construction Company, most of the large companies cannot rely on the smaller companies to complete parts of a given project. This is because through experiences in the past, these smaller companies have defaulted in fulfilling their promises. Hence, anyone interested in entering this line of business face the big challenge of establishing themselves as reliable before they could expect any significant work from the big general contractors in the country.

CHAPTER 9: CONCLUSION

Since the transfer of power from the former military regime to the current civilian government in 1999, several positive reforms have occurred in Nigeria over the last few years. Some of these reforms have been very good for the economy of the country, especially the construction industry. The changes that have occurred, which include the deregulation of several sectors of the economy, reforms in the banking sector, stabilization of the currency and inflation rates, and better management of government finances, have improved the macroeconomic outlook of Nigeria; hence increasing investor confidence in the country. Also, the rise in the price of oil, the repayment of the country's external debt, and the government's crackdown on corruption have all helped in increasing the amount of money available for infrastructure development across the country.

In this thesis, the Nigerian construction industry has been shown to generally be doing very well. Its impressive 21% growth rate in 2007 is better than all the other sectors of the economy, and also better than the overall GDP growth rate of Nigeria, which is expected to be about 9.1% in 2008. Relative to other industries in the country, the construction industry is among the smallest employer of labor, employing less than 1% of the total labor force over the last few years.

The thesis has also looked at the main players in the Nigerian construction industry. The industry is still heavily dominated by foreign companies; however, a few indigenous companies provide some competition to the foreign companies. Through its many departments, the government remains the largest client to construction companies. Today, several large scale projects are being built all over Nigeria, the biggest of which are in the new capital city of Abuja.

Despite all the positive things that are associated with the construction industry, several problems, including the problems of financing, materials unavailability, and the lack of skilled workers pulls the industry backwards. However, despite these problems, there exist a significant number of opportunities that new comers into the industry could tap into, in order to make significant profits. These opportunities are available in the ICT, education, and subcontracting sectors, among others.

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