

# **PERFORMANCE EVALUATION OF AJEOKUTA STEEL COMPLEX IN RELATION TO OUTPUT AND EXPORT PROMOTION**

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## **Abstract**

*This research is on the output performance evaluation of Ajaokuta Iron and steel complex and its contribution to Nigeria's export market. The Ajaokuta Steel Company was established to make Nigeria a leading player in the production and export of iron and steel. Three objectives and three hypothesis guided the study. Descriptive and statistical analysis were employed in the study. This methodology was complemented with econometric analysis for revalidation of the hypothesis. It was found that the Ajaokuta Steel Complex has not made significant contribution to the economic growth of the country, particularly with regard to the production of finished and semi-finished steel products in the iron and steel subsector. The expected outputs were not fully achieved and the purpose of providing high value-added iron and steel exports was not met. The results were that there has been a deficit between home demand and domestic production on the one hand and between exports and imports of iron and steel on the other. Therefore, the national objective of becoming a major regional and global producer and exporter of iron and steel products by the year 2020 seems bleak. Based on the above findings, the study recommended that to become a major regional and global producer and exporter of iron and steel products government should complete all the necessary infrastructures and logistic network to enable the entire iron and steel industry grow to its expected level.*

**Keywords:** Iron and Steel, Output, Export, Import, Manufacturing, Foreign exchange, Employment, and Economic stabilization.

In order to lay the foundation of a strong industrial structure, the government of Nigeria embarked, in the 1970s, on the establishment of heavy industries. The government paid high priority to the iron and steel subsector in implementing this strategy. It is in line with this that the Ajaokuta Steel Project was established in September 1979. The project was designed as an integrated iron and steel complex based

on the conventional blast furnace (BF) route for iron making and Basic Oxygen Furnace (BOF) for steel making (Ayayi, Adegbite and Iyanda 2015).

The project was embarked upon as a strategic industry and a foreign exchange earner. Apart from the foreign exchange and economic growth objectives, it was envisaged that the project would generate a myriad of socio-economic benefits to Nigeria such as increase in the productive capacity of the nation through its linkage effects and supportive roles to industries. In addition, it was expected that the project would greatly contribute to the achievements of other socio-economic goals of the nation, such as provision of materials for infrastructural development, technology acquisition, employment generation and training of labour, income distribution and regional development (Yekini, 2012).

The development of the Ajaokuta Steel Project was predicated on the backward integration strategy, which entailed the construction of the terminal stages – the finishing rolling mills – to be followed by the construction of the primary production plants. This approach had the advantage of enabling the company to generate substantial revenue from the operation of the rolling mills, using imported billets, while construction work on the primary plants continued simultaneously. A phased-commissioning sequence was also adopted for the implementation of the project.

The Ajaokuta Steel Company was established on September 18, 1979, and charged with the task of constructing and operating an integrated iron and steel plant at Ajaokuta. The first stage was to produce 1.3 million metric tonnes of long Iron and Steel products. The second stage was an immediate expansion of output to 2.6 million tonnes (made up of 2.3 million tonnes of flat products and 0.3 million tonnes of existing long products). The third stage was the expansion of the complex to produce 5.2 million tonnes of various types of finished and semi-finished iron and steel products including heavy plates and heavy sections. The design of the plant was such that it would be expanded to produce up to 10 million tonnes of products subject to demand.

Owing to the green field location of the steel plant, the Federal Government of Nigeria, in line with what obtains elsewhere in such situations, considered it necessary to embark on extensive township development in Ajaokuta at the inception of the steel plant construction. The project as designed encompasses several ancillary facilities in addition to the main production units- the iron and steel making plants and finishing rolling mills. By virtue of its virgin land location, an extensive township development and other related facilities worth billions of Naira were also included as part of the project.

Realizing the potentials of the project towards launching the nation on the true path of industrial and technological break-through, successive governments, especially the civilian administration headed by Alhaji Shehu Shagari pursued its execution with vigour by investing enormous amount of financial resources. Substantial progress was made, and within the short life of the Administration, most of the finishing rolling mills were completed and operated in line with the “backward integration” strategy adopted for the project’s implementation. Satisfactory progress was also recorded on works in other primary production units and ancillary facilities.

However, progress on the project started to diminish with the inception of the subsequent military regimes, and, in the year 1994, the development of the project was finally stalled after reaching about 98% technical readiness. Thus, completion of only about 2 percent of works on the multi-billion naira project stalled the timely realization

of Nigeria's dreams and hopes of establishing an "Industrial Accelerator" that was expected to transform, stabilize and revitalize its economy.

### **Statement of Problem**

After 37 years of the commencement of the establishment of the Ajaokuta iron and steel project, that was envisaged to be the base of Nigeria's industrialization, it is on record that the project has remained uncompleted. However, it is doubtful if the project has been producing the anticipated level of output of the various products. This doubt has been engendered by the fact that Nigeria's import bill for iron and steel products (estimated at \$1,054 million) is above 270 times the value of the country's export of the same products (valued at \$3.9 million). One therefore wonders if the problems of the project could be traced to any particular factor, which may include inappropriate choice of route for making iron and steel, problems of management contract, corruption, political considerations, poor management, inadequate funding, insufficient raw materials, or any other unspecified problems.

However, as the emphasis is on rapid expansion of capacity, steel production in Nigeria has remained generally inefficient and many steel plants are using obsolete technologies that have resulted in poor product quality, inefficient energy use and high levels of pollution. Meanwhile, the Ajaokuta iron and steel outputs were expected to increase productivity and efficiency and provide value-added quality products that would generate net foreign exchange savings while at the same time meeting local demands.

### **Research Questions**

In the light of the above, the following questions readily come to mind

- i. To what extent has Ajaokuta Steel Complex contributed to Nigeria's production of iron and steel?
- ii. What is the shortfall between targeted and actual output of the Ajaokuta Iron and Steel Complex?
- iii. What is the contribution of the Ajaokuta Iron and Steel Complex to Nigeria's export market in iron and steel products?

### **Objective of the Study**

The major objective of this study is to evaluate the output performance of the Ajaokuta Iron and Steel Complex and its contribution to the Nigerian export market. Specifically, the objectives of the study are:

- i. To determine the contribution of Ajaokuta Steel Complex to Nigeria's production of iron and steel over the years.
- ii. To estimate the shortfalls between expected and actual production of iron and steel by Ajaokuta Iron and Steel Complex.
- iii. To estimate the contribution of Ajaokuta Iron and Steel Complex to Nigeria's exports of iron and steel.

### **Hypotheses of the Study**

In order to address the research problem, the study formulated the following hypotheses.

H<sub>01</sub> Ajaokuta Iron and Steel Complex has not contributed significantly to Nigeria's output of iron and steel over the years.

H<sub>02</sub> There is no difference between the expected and actual production levels in Ajaokuta Iron and Steel Complex.

H<sub>03</sub> There is no significant contribution to Nigeria's export market in iron and steel by the Ajaokuta Iron and Steel Complex.

### **Significance of the Study**

The finding of this study will be beneficial to the Nigerian government, researchers, investors and the general public in Nigeria. The volatility of the oil market in Nigeria dictates the need for diversifying the economic resource base of the country. To this effect the Nigeria government has been working to promote the production and export of mineral resources of the economy, including ferrous and non-ferrous metals. It is for this reason that it established iron and steel rolling mills in the country. The Ajaokuta Iron and Steel Complex has been "tagged the bedrock" of Nigeria's industrialization because of its status as the leading producer of iron and steel in the country. It was envisaged to be the fulcrum of iron and steel industry in Nigeria, the centre point around which subsidiary iron and steel mills in the country revolve either as suppliers of semi processed materials or users of finished products of the pivot establishment.

In the eyes of the government, the success or failure of Ajaokuta Complex means the industrial success or failure the Nigeria economy. Thus, a successful evaluation of the production and exportation performance of the complex has serious implications for policy making in the country. It has remarkable implications for industrial, employment, and export promotion policies in the country.

### **Scope of the Study**

The study is restricted to Ajaokuta Iron and steel complex, with some references made to other iron and steel rolling mills in Nigeria. The areas of interest include export market contribution, production level, the role of politics and management. The period covered is 1980-2013.

### **Literature Review**

#### **Conceptual Literature**

##### **Import Substitution**

Import Substitution is an industrialization strategy of initially concentrating on replacing imports by domestically produced substitutes. The proponents of this strategy argued that the main difference between poor and rich countries was that rich countries were industrialized whereas poor countries were not. Richer countries were based on manufacturing whereas poor countries, solely relied on primary industries such as agriculture and raw materials.

According to economists like Paul Prebisch and Hars Singer, poor countries exporting primary products would always face deteriorating terms of trade when compared to industrialized countries. This is because the income elasticity of demand for manufactured goods was far greater than that of primary goods. The obvious solution for this problem was for the poor countries to industrialize, and thereby produce value-added products that would reap greater returns, they argued (ISN staff, 2012).

### **Backward Integration**

Backward integration is the expansion of a firm's activities to include the production of inputs formerly supplied from outside. Examples include a firm manufacturing its own components, mining its own mineral requirements, generating its own power supplies, or even growing food for its own works canteen. Backward integration may be pursued to improve the quality or reliability of inputs, to reduce its cost of production, or to increase a firm's monopoly power by denying its actual or potential rivals access to inputs (Black, 2002).

Backward integration is a form of vertical integration that involves the purchase of suppliers. A company exhibits backward (upstream) vertical integration when it controls subsidiaries that produce some of its inputs used in the production of its products. For example, an automobile company may own a tyre company, a glass company and a metal company. Control of these three subsidiaries is intended to create a stable supply of inputs and ensure a consistent quality in their final product (Wikipedia, 2016).

### **Ajaokuta Steel Complex**

Nnorom (2012) stated that the Ajaokuta Steel Plant, an integrated steel plant, which is based on the Blast Furnace/Basic Oxygen Furnace route of steel production, was designed to produce 1.3 million tones of cast blooms per annum in the first phase, with in-built facility to expand to 2.6 million tonnes and 5.2 million tonnes in the second and third phases respectively. All the steel to be produced in the first phase (1.3 million tonnes) was to be processed into long products, while the additional production from the second and third phases were to be dedicated for flat steel production and capacity enhancement respectively (Obikwelu et.al., 2012).

During Nigeria's Second National Development Plan (1970-1974) the Nigerian government established the National Steel Development Authority (NSDA) that was saddled with the responsibilities of iron and steel development. During the Third National Development Plan (1975-1980) the government signed various agreements for the construction of two integrated steel plants and three rolling mills. Through Decree No. 60 of 18<sup>th</sup> September, 1979, the government dissolved NSDA and established several organizations; Ajaokuta Steel Company, Delta Steel Company, Jos Steel Rolling Company, Katsina Steel Rolling Company, Oshogbo Steel Rolling Company, National Iron Ore Mining Company, National Steel Raw Materials Exploration Agency, National Metallurgical Development Center and Metallurgical Training Institute (Ohimain, 2013). The above establishments were in recognition of the importance and role of iron and steel development in national development.

Nigeria is a fast developing country but lacks some basic infrastructure especially in the rural sector. It has fared well in certain sectors of the economy such as oil and gas, telecommunications and recently in the cement manufacturing subsector (Ohimain, 2004; Okpanachi and Obute, 2011). However, in the rural sector certain basic facilities are either non-existent or inadequate. Iron and steel are required in all the above sectors. It has been recognized that the growth of Nigeria is slow due to lack of domestic production of iron and steel (Ohimain, 2013). Indeed, Ede et.al. (2015) has blamed the root of poor performance of the country's economy on the poor performance of the steel industry. This is because iron and steel products play a major role in industrialization and infrastructural development. Although Nigeria has the potential of becoming a regional

economy in the West African subregion, its economy cannot be strong and vibrant without the growth of its iron and steel sector or without the use of iron and steel in the manufacturing sub-sector (Agbu, 2007). For instance, the gathering of associated gas which is currently being flared, gas utilization projects such as the piping of gas to several power plants in the country and the extension of West African gas pipeline to Europe are infrastructural projects which require iron and steel products. Moreover, Nigeria is attempting to boost agricultural production and has released policies to this end. These policies involve infrastructural development such as irrigation, farm mechanization, food processing facilities, road and bridge construction, housing development, etc. All these development activities require iron and steel products (Ohimain, 2013).

Until recently almost all Nigeria's steel requirements have been met by importation from Western nations such the US, Great Britain, Germany and Japan and recently by cheap and substandard steel imports from Asian countries (Agbu, 2007). This has resulted in Nigeria spending a huge portion of its foreign exchange earnings on the importation of steel products while at the same time investing huge sums of money on domestic production. This means that successful development of integrated iron and steel industry in the country would eliminate or substantially reduce the importation of iron and steel products, including steel billets, by privileged groups who have hitherto milked the nation through the importation of these products. The billet importation policy is said to have caused the subjugation and irrelevance of Nigeria's steel professionals and hindered their contribution to the country's industrialization and national development (Umunnakwe, 2011).

With respect to the role of steel in industrialization and manufacturing, Edebiri (2016) opined that steel products were crucial for industrialization. According to him, a nation cannot claim to be industrialized unless it is able to produce some 70% of the goods utilized in it and that this cannot happen unless that country has a steel base. A country cannot claim to be industrialized when it has to import tubes, flat sheets, alloy and sections because by the time all these items are imported, the cost of domestic production have risen above the cost of imported counterparts.

In addition to its place in industrialization, development and conservation of foreign exchange, the development of iron and steel industry has a positive and great impact on the reduction of unemployment. According to the Deputy General Secretary of Iron and Steel Staff Association of Nigeria, the death of the steel industry in Nigeria aggravated the nation's unemployment problem (Gbemre, 2014). Unless the steel industry was revived, the unemployment problem in the country would persist, he concluded.

Alao (2010) opined that the troubled Ajaokuta Steel plant had been under construction for the past 24 years and gulping more than \$5 billion (N665 billion). The new agreement with Global Infrastructure was supposed to see it take full control of Ajaokuta Steel Company for ten years, which was renewable for another ten years (Sahel, 2004).

Reasons accountable for the poor performance of the iron and steel industry in Nigeria have been shown to include infrastructural problems, personnel problems, political problems, bribery and corruption, and lack of will (Obikwelu and Nebo, 2012). Ohimain (2013) has corroborated the above conclusion in his own findings that identified political, technical, logistical and managerial challenges as the constraining

factors. However, the infrastructural problems have to some extent been reduced by the fact that the railway link between Warri, Ajaokuta and Itakpe, as well as roads to Ajaokuta, have been completed (Onoyume, 2013).

### **Attempts to Estimate Production and Exports of Iron and Steel in Nigeria**

Omoh and Binniyat, (2008) in a well-researched interview with who is who in the Iron and Steel Industry based their questions on the basic facts of Iron and Steel including “How realistic is Vision 2020 without a functional Iron and Steel Plant?” Their fact-finding reviewed that:

Nigeria produces 300,000 metric tonnes, per annum only.

South Africa produces about 36 times more steel than Nigeria.

Egypt 20 times more.

Algeria and Libya 4 times than Nigeria.

Recently foreign trade estimation of Nigerian iron and steel by business search service (2013) analyzed the iron and steel annual in USD starting from 2010-2013 under the sub-heading

### **Theoretical Frame Work**

#### **The modernization Approach**

The modernization approach emphasizes import-substitution strategy to development. This model is a trade policy which emphasizes replacement of some agricultural and industrial imports to encourage local production for local consumption rather than producing for export markets. It is meant to generate employment, reduce foreign exchange demand, stimulate innovation, and make the country self-reliant in critical areas such as food, defense and advanced technology.

Encyclopedia Britannica, (2016). Implementation of the policy focuses on protection and incubation of domestic infant industries unit they are capable of competing with imported products.

#### **The Dependency Approach**

Dependency theory, developed in the late 1950s and became popular in the 1960s, is the notion that resources flow from a “periphery” of poor and underdeveloped states to a “core” of wealthy states, enriching the latter at the expense of the former. According to the model, industrial development strategy in developing countries is concerned more with the development of those industries that use locally generated raw materials but foreign technologies and sometimes foreign capital, and are able to meet the demands of local consumption.

**Method of Data Analysis**

In this study both descriptive and statistical analyses will be used. Descriptive and statistical analyses have been adopted in order to achieve the first, second and third objectives. This statistical results were revalidated with econometric analysis.

**Hypothesis 1:**

Dependent variable: OPTAGET Method: Least Squares Date: 03/24/17 Time: 20:13 Y Sample: (adjusted): 1997 2006 Included observations: 7 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1839.225	68.69868	26.77235	0.0014
Accoutpt	11.12105	1.032805	10.76781	0.0085
Ser01	-227.0766	8.397448	-27.04115	0.0014
Export	2.840274	2.290389	1.240084	0.3407
Pertexp	5.594551	0.745612	7.503298	0.0173
R- squared	0.999716	Mean dependent var		1559.786
Adjusted R-squared	0.999147	S.D. dependent var		236.0460
S.E of regression	6.894535	Akaike info criterion		6.875144
Sun squared resid	95.06923	Schwarz criterion		6.836508
Log likelihood	-19.06300	Hannan-Quinn criter.		6.397615
F – statistic	1757.725	Dubin-watson stat		3.380929
Prob (F-statistic)	0.000569			

*Source: computed from Appendix 1 and 5*

Hypothesis 1: which is data on domestic need, output and export shows its computed t-statistics as 26.78 when compared with theoretical t-statistics is 1.72 at 5% degree level of significance under 24 degree of freedom. We confirm as already stated above that Ajaokuta Iron and steel complex has not contributed significantly to Nigerian’s output of iron and steel over the study years. Looking at the above diagramme the computed t-statistics value has fallen within the acceptance region therefore confirming the null hypothesis  $H_0$  And rejecting the alternative  $H_1$

From adjusted R-statistics which is 0.999 one can attest that over 99% of the variation in Y was explained. The researcher hereby conclude in agreement as in hypothesis 1 above that Ajaokuta iron and steel complex has not contributed significantly to Nigeria’s output of iron and steel over the study years. Therefore, the complex has not made significant



contribution to the economic growth of the country particularly with regard to the production finished and semi-finished iron and steel products for the iron and steel sub sector.

**Hypothesis 2:**

There is no different between the expected and actual production levels in Ajakuta iron and steel complex.

Dependent variable: OPTAGET				
Method: Least Squares				
Date: 03/24/17 Time: 21:8 Y				
Sample: (adjusted): 1986-2011				
Included observations: 22				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	126063.7	81981.18	1.537716	0.1398
Export 1	= 0.766329	2.227233	-0.344072	0.7344
R- squared	0.005884	Mean dependent var		97963.81
Adjusted R-squared	0.043821	S.D. dependent var		32827.23
S.E of regression	33538.78	Akaike info criterion		23.76530
Sun squared resid	2.25E+10	Schwarz criterion		23.86449
Log likelihood	-259.4183	Hannan-Quinn criter.		23.78867
F – statistic	0.118386	Dubin-watson stat		2.022443
Prob (F-statistic)	0.734383			

*Source: computed from Appendix 4*

**Hypothesis 2:** Here the computed t-value is 1.54 when compared with the tabulated value which is 1.75 at a two test at the same 5% level of significance under 21 degrees of freedom see table (for students t-distribution table) we reject  $H_0$  which stated that there is no significant difference between the expected production output of iron and steel and actual production levels in Ajaokuta iron and steel complex because our calculation t-statistics value of 1.54 has fallen in the rejection region or critical region. We therefore reject  $H_0$  and accept the alternative Hypothesis which states that there is a different between the expected and actual production levels in Ajaokuta iron and steel complex. This hypothesis is equally in agreement with the performance evaluation table above. It therefore validates the conclusions of the hypothesis.

The second result of the regression and correlation statistics analysis still turn negative in its computed t-statistic confirming significant indicating that Ajaokuta iron and steel complex has not contributed significantly either in production output or Nigerian iron and steel export market over the study years. With this the researcher concludes that there is difference between the expected and actual production levels in Ajaokuta iron and steel complex. Therefore, the expected outputs from the inception/the amended components where not fully achieved and the purpose of providing high valued quality products was not met either.

**Hypothesis 3:**

There is no significant contribution to Nigeria's export market the Ajaokuta iron and steel complex.

Empirical Regression result with t-test

Dependent Variable: TDNEED

Date 03/26/17 Time: 11:35

Sample: 2009 2012

Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	253031.4	646417.2	0.391437	0.7037
Actop	-40730.43	6022.786	-6.762723	0.0000
Export	144160.3	21665.30	6.653972	0.0001
R- squared	0.820106	Mean dependent var		1424643
Adjusted R-squared	0.820106	S.D. dependent var		1597913
S.E of regression	677737.7	Akaike info criterion		29.89008
Sun squared resid	4.59E+12	Schwarz criterion		30.02046
Log likelihood	-191.2855	Hannan-Quinn criter.		29.86328
F – statistic	28.35295	Dubin-watson stat		2.053950
Prob (F-statistic)	0.000076			

*Computed from Appendix 3 & 4*

**Hypothesis 3:** there is no significant contribution to Nigeria's export market in iron and steel by the Ajaokuta iron and steel complex. Here the data in Appendix 1 and 2 that has to do with income and expenses, the total output of iron and steel as well as the total export of iron and steel were used to run the econometrics analysis.

$Y = b_0 + b_{1x} + b_{2x2} + u$  is concerned with the establishing the fact that Ajaokuta iron and steel complex has not contributed significantly to the Nigerian export market in the analysis the computed t-statistics is -6.78 and 6.65 respectively when compared with the tabulated t-statistics at 5% level of significance under the 12 degrees of freedom.

Confirms the hypothesis that there is no significant contribution to Nigeria export market while rejecting the alternative hypothesis

**Summary of Research Findings**

In terms of the export performance, the situation was not better. In absolute terms the export performance of the complex remained somewhat stagnant at about 34kg-45kg of iron and steel over the years. In fact Nigerian total export of steel ranked 7<sup>th</sup> in Africa and 73 in the world in 2013.

Again between export and import widened over the years in terms of the later. The ratio of exports to imports in 2000 stood at 0.0001 but declined to about 0.0003 in 2012. The exception occurred in 2006 when the ratio of 0.005 was recorded.

In respect of output performance, it has been found that the complex has performed below expectation. Its not only output, the gap between it's expected and actual output has been wide and tended to widen over the years 1986-2011.

### **Conclusion**

The researcher has in this study, traced the genesis and development of Ajaokuta iron and steel industry. The establishment of Ajaokuta Iron and Steel Complex as the bedrock of the Nigeria's iron and steel industry marked the culmination of the nation's effort to establish a solid industrial base for technological development.

Suggestions have been made towards the resuscitation of the complex. The successful resuscitation and development of the complex remains the fulcrum of Nigeria's efforts to industrialize.

### **Recommendation**

i. Since the Ajaokuta iron and steel complex is the bedrock of Nigerian iron and steel industry, government should make its resuscitation and successful development a national priority.

ii. Adequate budgetary allocation should be made to ensure the adoption of the latest state of the art of technology, provision of adequate structure and facilities, the supply of adequate inputs and regular payments of workers remuneration.

iii. Government should not interfere in the management and personal recruitment of the complex workers/management staff.

The complex should be commercialized and operated in a businesslike manner. In this case, the role of the minister of industries should be limited to prescribing performance targets in terms of export output, exports and

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## AN APPEAL

Ajaokuta was never totally off, it has been off and on. I know there was a time workers protested for new wages before it started operating skeletal but today, more has been put in place like the railway lines at the drenching of the river Niger.

Except you wish to change the topic to Performance Evaluation of Nigerian Iron and Steel Mills in relation to output and export promotion.

The former if you may wish to know was my Ph.D thesis at the University of Nigeria Nsukka just recently.

The data were all genuine check the following

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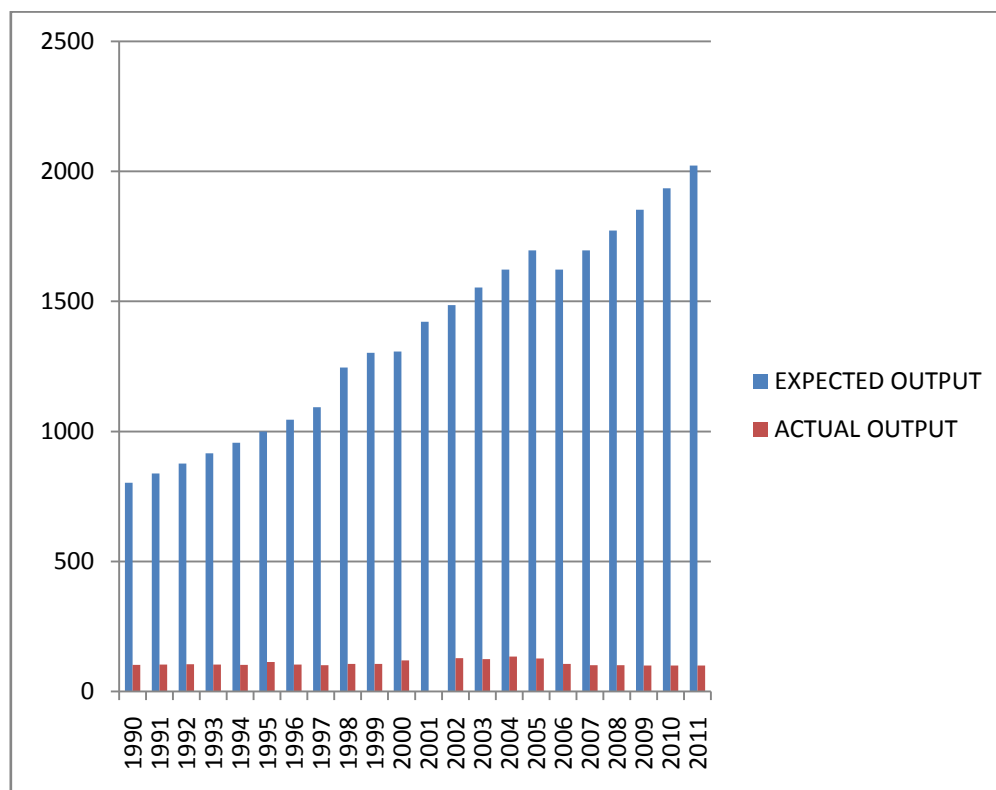
## APPENDIX I AJAOKUTA IRON & STEEL COMPLEX OUTPUT TAGET ACTUAL OUTPUT (000)

YEAR	EXPECTED OUTPUT	ACTUAL OUTPUT	DEFICIT	DEFICIT RETURN
1990	802.5	102.5	700	0.13
1991	838.6	103.0	735.5	0.12
1992	876.3	104.9	771.4	0.12
1993	915.8	103.5	812.3	0.11
1994	957.0	101.9	855.1	0.11
1995	1000.0	113.8	886.2	0.11
1996	1045.0	103.9	941.1	0.09
1997	1092.1	101.5	990.6	0.09
1998	1141.2	106.0	1035.2	0.09
1999	1192.6	105.5	1087.1	0.08
2000	1246.2	118.8	1127.4	0.09
2001	1302.3	NA	-	-
2002	1306.9	127.7	1179.2	0.09
2003	1422.2	123.8	1298.4	0.08
2004	1486	133.7	1352.5	0.01
2005	1553	126.3	1426.7	0.08
2006	1622.9	106.4	1516.5	0.07

2007	1696.0	101.0	1595	0.06
2008	1772.3	100.5	16711.8	0.06
2009	1852.0	100.0	1752	0.05
2010	1935.4	99.5	1835.9	0.01
2011	2022.5	99.1	1923.4	0.05

#### APPENDIX II

Figure 1: Expected and Actual Steel Production in Nigeria, 1980 – 2011



#### APPENDIX III

Item	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Income	20	23	20	18	19	17	13	14	17	16
Expenses	118	223	235	292	335	342	326	363	784	757

#### APPENDIX IV

#### OUTPUT AND EXPORT PERFORMANCE OF AJAOKUTA IRON AND STEEL MILLS ('000) METRIC TONNES

(1) YEAR	(2) OUTPUT TARGET	(3) ACTUAL OUTPUT	(4) (3) AS % OF (2)	(5) EXPORT
1986	672.9	104.4	15.5	35.5
1990	802.5	102.5	12.8	34.8
1991	838.6	103.0	12.3	35.0

1992	976.3	104.9	12.0	35.6
1993	915.8	103.5	11.3	35.2
1994	957.0	101.9	10.6	34.6
1995	<b>1000.0</b>	<b>113.8</b>	11.4	38.7
1996	1045.0	103.9	09.9	35.3
1997	1092.1	101.5	09.3	34.5
1998	1141.2	106.0	09.3	36.0
1999	1192.6	105.5	08.8	35.8
2000	1246.2	118.8	09.5	40.4
2001	1302.3	-	-	-
2002	1306.9	127.7	09.4	38.9
2003	1422.2	123.8	08.7	42.0
2004	1486	133.7	09.0	45.4
2005	1553	126.3	08.1	42.9
2006	1622.9	106.4	06.6	36.1
2007	1696.0	101.0	06.0	34.3
2008	1772.3	100.5	05.7	34.1
2009	1852.0	100.0	05.4	34.0
2010	1935.4	99.5	05.1	33.8
2011	2022.5	99.1	04.9	33.6

Note\* Values interpreted at a continues growth rate of 4.51% (from 0.54 million metric tones in 1982 to 3.0 metric tones in 2010)

Source: Ajaokuta Iron and Steel Complex Production and Marketing Unit)

#### APPENDIX V

	<b>Y DOMESTIC NEED</b>	<b>X<sub>1</sub> OUTPUT</b>	<b>X<sub>2</sub> EXPORT</b>
2000	758694.5	118.8	40.4
2001	394703	0	0
2002	776670	127.7	38.9
2003	2290933.5	123.8	42
2004	625564	13.7	45.4
2005	813562	126.4	42.9
2006	2602070	106.4	36.1
2007	888389	101	34.3
2008	722626	100.5	34.1
2009	868894.5	100	34
2010	670550.5	99.5	33.8
2011	881050	99.1	33.6
2012	876505	99.75	33.9
2013	1096549.5	99.3	33.7



**APPENDIX VI**  
**COMPARATIVE IRON AND STEEL PRODUCTION IN THOUSAND METRIC TONES**

<b>YEAR</b>	<b>CHINA</b>	<b>UNITED</b>	<b>SOUTH AFRICA</b>	<b>EGYPT</b>	<b>ZIMBABWE</b>	<b>NIGERIA</b>
1990	6,238	87,726	8,691	2,326	580	220
1991	87,000	79,738	9,358	2,541	581	200
1992	75,890	84,322	8,970	2,524	547	200
1993	87,389	88,800	8,726	2,772	221	150
1994	97,400	91,200	8,525	2,622	187	58
1995	105,293	95,200	8,741	2,642	210	36
1996	107,225	95,500	7,999	2,618	212	0
1997	115,114	98,500	8,311	2,717	214	0
1998	118,269	98,600	7,506	2,500	212	2
1999	125,392	97,400	6,925	2,619	228	0
2000	259,519	149,921	16,773	4,220	535	0
2001	307,177	132,218	14,641	5,200	312	26
2002	353,212	134,800	14,918	5,715	227	26

*Sources: UN (2001;2004) Statistical Year Book, 1999, 2002-2004; National Bureau of Statistics (2006) Annual Abstract of Statistics.*