

The Steel Industry: A Stimulus to National Development

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Abstract

The Steel Industry will continue to serve as stimulus to national development and economy booster to industrial development of a country. The industry will serve as the backbone of industrialization of our great country, Nigeria if all the necessary parameters are put in place. The benefits of having a functional steel industry will translate to a functional country. It should also be noted that steel industry will contribute to all the facets of the economy, including the important role steel plays in economic development and growth. In this presentation, the paper will highlight on the multiplier effects in the development and sustenance of agriculture, health care and virtually every other sector of the economy. The role of steel in defence was also identified. Discussion and emphases were placed on the efforts made in the development of Steel Industry in Nigeria with a view to discussing the potentials that could be accrued for operating the industry. The paper also seeks the concept of Government through this process of advocacies by requesting the Nigerian Government to complete the steel industry like Ajaokuta Steel Company Limited located at Ajaokuta in Kogi State. It should be noted that the steel industry was conceptualized as far back as 1958, because of the vital and strategic role of the steel industry in the transformation and reformation of the economy. If Nigeria ever desires to drop the toga of “underdeveloped economy” for that of “industrialized economy” catalyst and economy booster the industry must be completed and made operational. If the steel industry had been completed, commissioned and effectively operated thirty-four years ago as conceptualized in the vision of the initiators, Nigeria would have been a different country in terms of industrial and economic development today.

Keywords: Steel; Industry; Stimulus; Economy; National and development

Introduction

In its annual report of 1985, the United Nations Industrial Development Organization stated thus: “whether a developing country should develop its own iron and steel industry depends upon various factors. Undoubtedly, it is advantageous for a country to develop its own iron and steel industry if the necessary raw materials are available” (Technological Perspectives In Machine-Tools Industry and their Implication for developing countries, UNIDO, 1985). Over time, Nigerians have been worried over the deplorable state of the steel industry in the country; and many have felt sorry for our dear country, Nigeria [1].

Steel in National Economy

It is generally known that present material civilization has been largely due to man’s knowledge and application of metals. Without metals, there would be no railways, aero-planes, automobiles, ships, turbines, electric motors and generally no electrical power. There will be no modern bridges or massive oil rigs and the little but important things of life from simple razor blades to knives and forks and the printed newspaper would be essentially lacking, perhaps, a few of these could be fashioned from wood, but they couldn’t go very far. It is also widely recognized that central to all these metallic inventions, innovations and motive power, is the particular class of metal known as “STEEL”.

Primary steel sector industries are fundamentally different from other industrial establishments in many respects. They are basically strategic industries that serve the long term industrial needs of a nation through their unique role as feeder channels to myriads of other key establishments. No serious programme of industrialization can be contemplated without a strong steel base, at least a steel base that would grow with the visualized scope of general industrialization

over a set period. Looking at some of the few successful economies of the developing nations such as South Korea, Brazil, and Taiwan and to some extent India had their success stories largely from well-articulated steel development programmes leading to innumerable ancillary, downstream and spin-off industries.

The apprehension of sections of the Nigerian elite, over the huge resources committed to the steel companies in the country is of course understandable [2]. However, it must realistically be appreciated that the economic viability of steel company cannot be measured by the traditional indices of measurement because of their strategic nature. Very few, in fact less than 20 per cent of the steel companies the world over do break even. All the same, large business interests and government agencies sustain the steel company.

It was during the year following the World war II that steel became fully utilized in building the industrial society that has achieved so much prosperity in the industrialized world. The World’s output of crude steel between 1871 and 1980 totalled 18.71 Billion tonnes and almost 70 percent of this total was produced in the 34 years between 1946 and 1980, which positively emphasized the impact of steel on the moulding of an industrial economy.

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Steel as an Index of Power

Since the Second World War, the nations of the world have come to appreciate the unique role of steel as the base for rapid technological progress and STEEL has become an index of National Power. Steel had enabled Britain to launch the first industrial Revolution and Western Europe to colonize most of the World. Germany overran Europe while Japan suddenly leapt to the forefront of modern technology [3]. Similarly, the United States became a supreme post-war global power as it systematically boosted its steel capacity to excel the entire output of continental Europe.

About 1780, over two centuries ago, the greatest amount of iron produced in the world was less than 20,000 tonnes a year! Today the size of the furnace in Ajaokuta Steel Company can produce this quantity in under a quarter of an hour. By 1840, the figure was about 1.25 million tones and by 1900 it was 9 million tones. Today, Iron and Steel production has become phenomenal giant nations like United States, the former USSR and Japan produced 326 million tonnes of steel in 1970 and over 405 million tonnes in 1974, the peak year in world steel output [4].

In 1980 the total world output was estimated at 900 million tonnes of raw steel. It is not surprising therefore, that Nigeria's emergence as latest debutant on the steel scene was widely acclaimed locally and generated understandable euphoria throughout the country. Steel being the necessary and almost sufficient condition for a nation's power base, it is wise that our great country Nigeria should join the club.

Steel as Economic Nerve Trigger

The great importance of steelmaking to national economy is not restricted to its immediate or direct application. For its smelting alone, it triggers off a series of economic activities for its input raw materials and energy such as:

- Iron ore: Mining, transportation, beneficiation, preparation;
- Coke: Coal mining, sizing and preparation, coking in coke ovens;
- Lime stone: Quarrying and calcining;
- Oxygen: Manufacture of oxygen and lances for steel refining;
- Refractory Bricks: Clay preparation and firing;
- Additives; Manufacture of nozzles;
- Air and fuel: Pre-heating and atomizing of oil and gas;
- Energy: Power construction, generation and distribution, services, etc.

Added to these large scale economics and industrial activities associated with the raw materials used for steel making, are ancillary downstream foundry, machining, fabricating and processing industries, as well as extensive services such as transportation and supplies which are given a big boost. Statistical evidence indicates that the production of raw steel is attended to by over twenty types of ancillary industries and associated economic activities: These do not include continuing research into the further development, utilization and adoption of raw materials resources and technology [5].

Steel and Industrialization

In the advanced or developed economies such as, USA, Japan, Germany, France, U.K., etc., industrialization has been associated

with ability to produce consumer and capital goods which enhance domestic self-sufficiency and reduce foreign exchange drainage; and ability to promote employment generation and local manpower development and hence increase in per capital income, purchasing power and potential to invest. The role of the Iron and Steel Industry in national industrialization is pre-eminent. This is because steel remains the basic raw material for a host of manufacturing activities and hence the material backbone for national economic development in general. Malaysia exports 75% of its steel products to other countries.

Steel as a Strategic Industry

The steel industry is the bedrock of the industrial growth of any nation. It is so vital to the development of any nation that every country attempts to acquire and take control of the sector even in cases where the raw materials are not available locally. For instance, Japan and South Korea, who are among the largest producers of steel in the world today, do not have the raw materials for steel production locally. The giant technological stride that they have experienced over the years is attributable to the development of their steel industries [6].

Today, over 80% of the world's industrial goods and infrastructure are steel based. Furthermore, products of integrated Steel Company sustain spare parts and components of the industries that produce these goods. Such industries will provide the base for Nigeria's industrial take-off. The abandonment of the company has contributed to the economy woes of the Nation.

Foreign Exchange Earner

The amount of foreign exchange being expended on the importation of steel today runs into billions of dollars. This colossal amount of money is an unacceptable waste of our meager resources and could have been diverted to other vital sectors of the economy. On the other hand, it is expected that the Ajaokuta Steel Company Limited when completed will generate enormous foreign exchange through export. It is also envisaged that the products of company would be exported to the West African sub-region and other African countries. During the short period of Global Infrastructure Holding Limited (GIHL) a statement was credited to the Management (Ajasteel 2006:6) that Ajaokuta steel company limited generated \$74 million in foreign exchange for the sales of 128,000 metric tonnes of rolled products. According to the report, ribbed bars were exported to four West African countries as follows: 3,800 metric tonnes to Mauritania, 3,400 metric tonnes to Cote d'Ivoire, 1,050 metric tonnes to Benin Republic and 600 metric tonnes to Mali [7]. In the same vein The Ajaokuta steel company limited supplied Power Holding Company of Nigeria (PHCN) with 65 MW of Electricity. Other beneficiaries of the company's 85 MW of electricity generated from the Independent Thermal Power Plant (TPP) include, Lokoja, Okene as well as Benin city and its environs. In another report (Ajasteel 2006:7), 50,000 megawatts have been exported from the Ajaokuta Steel Company Catchment Power Company to Power Holding Company of Nigeria (PHCN) to service electrical strength in Okene, Lokoja, Itakpe and Ajaokuta Villages since 2005 to 2007. Further a concessionary agreement process had commenced between Ajaokuta Steel Company limited Management and the Management of Obajana Cement Factory to export 147,000 megawatts of electricity to the cement industry to enable it go into production when completed.

Availability of Raw Materials

Unlike some countries that are major producers of Steel in the world, Nigeria is blessed with virtually all the raw materials that are

necessary for the production of steel. For instance, we possess a large reservoir of iron ore deposits in Itakpe, which is the primary source of raw material to Ajaokuta Steel Company Limited.

There are iron ore deposits in several other locations within Kogi state and other parts of the country. The country is also blessed in abundance with other relevant raw materials such as Dolomite, Clay and Limestone required for Steel production [8]. Even the coking coal that is to be imported has been discovered in some locations like Lafia/Obi in Nasarawa State and Enugu in Enugu State. This will surely reduce our dependence on imported coking coal.

Availability of skilled labour

Nigeria possesses the skilled manpower and technical know-how to run the company efficiently. Also, thousands of professionals have been trained both locally and internationally in anticipation of the take-off of the Steel Company. In addition, the Federal Government has set up institutions such as the Metallurgical Training Institutes in Onitsha, Ajaokuta and several other locations for training the future manpower needs of Ajaokuta Steel and other related Steel Industries [9].

The multiplier effects on the economy

The Steel Company is envisaged to have multiplier effects that will permeate all sectors of the Nigerian economy such as the industrial, agricultural, transport and construction sectors. For instance, when the company is completed and commissioned, Nigeria would become a major producer in industrial machineries, auto-electrical spare-parts, shipbuilding, railways and carriages. Ajaokuta alone is expected to attract over a hundred downstream industries. Thus the gains of having the steel industry far outweigh whatever considerations being used for its delayed take-off or abandonment.

Technology Transfer

There is no doubt that actualization of the Steel company will bring about technology transfer to the country. This will open a new vista for our technological take-off. It is expected that when the Steel Company becomes functional, foreign investors would be attracted to participate in the steel development. Indeed, nothing can expedite and actualize the much talked about technology transfer to developing countries especially Nigeria like the take-off of the Ajaokuta Steel Company Limited and other steel industries.

Steel as Industrial Raw Material

Steel has contributed immensely to the development of nations and from this view; steel has also attracted raw materials processing industries afore-mentioned, such as mining, beneficiation, and coking, calcining and refractory manufacture. Steel, in its various crude or primary forms, together with its by-products, is an essential input raw material for a host of other industrial activities or works. Many allied industries which would be activated or receive stimulus from raw steel production.

- Mild or Low-carbon steel (billets) - Rolling mills - Rounds production rods and bars-rolled from ingots or billets for civil works, construction and building industry and general engineering fabrication including furniture.
- (Medium-to High carbon steel (billets, slab and bloom) - Pipe manufacture and tubes made by extrusion or piercing also used in construction and furniture. Channels and angles for heavy works construction, derricks, etc. Also strip mills for

flats, plates and sheets rolled from slabs, construction and fabrication of vessels, tanks and reservoirs, truck bodies and trailer trays; silos, drums and various containers; cabinets and general furniture; railway rolling stock; cold strip mills for cold rolling of sheets for cabinets and higher quality vessels and containers.

- Low carbon alloy steel (slab bloom): Flat sheets usually cold-rolled from slab and bloom for the construction and fabrication of reactor vessels, car bodies and high quality silos, and various domestic utensils
- High-carbon alloy and special Alloy steel (Slab): Quality (Special) steel manufacture: Stainless steels for laboratory and hospital instruments, high quality goods and anti-corrosion and heat-resisting vessels and parts; austenitic steels for petrochemical company and equipment, manganese steels for rails and cables and other parts of rolling stock. Tungsten and vanadium steels for special ordinance equipment and tools and nuclear reactor vessels; chromium, molybdenum steels for oil drilling.
- Scrap and Foundry Steel (Ingots, Billets): Steel Foundries for making castings and forgings leading to the manufacture of implements, automotive and machine parts and household items. Machine tools manufacture from heavy castings whence fabrication of agricultural implements, appliances, company machinery and parts and major ordinance equipment [10].
- By-Products: (a) Coke Ovens - Application to industry as from - coke; also tar and tar felt for insulation, benzol, pitch, naphthalene, ammonia, sulphur; highway and macadam.
- Slag: Application to fertilizers; clinker for cement industry and highway 'macadam'.

Steel and Food Production

The role of the steel industry in transformation of the agricultural sector from the mere production of raw materials to the conversion of the raw materials to intermediate or finished products for export has already been identified. The general decline in the agricultural sector is arguably due to the absence of a viable steel industry. There are three broad levels of agricultural mechanization technology, namely: the Hand Tool Technology (HTT) Draught Animal Technology (DAT) and Engine-Power Technology (EPT). All three levels are applied in the agricultural sector of Nigeria. However, studies have revealed that 86% of tillage land preparation is done by HTT, 4% by DAT and 10% by EPT (Mrema and Mrema, 1993). It must be noted that, whatever level of agricultural mechanization is desired, the role of steel is pre-eminent because a large percentage of the implements are either steel or steel based. Therefore any Action Plan for the revolutionizing of the agricultural sector must be hinged on the development of the steel industry like the Ajaokuta steel company limited. Let us look at this case study, where Nigerians Lament as reported in one of Nigerian daily Newspapers, The Sunday Sun (April 13, 2008:49) "RISE AND RISE OF RICE PRICE" - The global escalation of the price of rice, which has a ripple effect on the country, and affected prices of other stuffs, has created fears in the minds of Nigerians who are worried about the consequences the shortfall might have on the poor. According to Oghenekvwe Laba, a random check in the market across Lagos metro-police indicates that the situation is real and hard biting. The angry outburst of Austin Jeffiam, Bukateria operator in Lagos Island, best sums it up: "where do we go from here?" Imagine a cup of rice selling

for ₦160 instead of ₦100. In the 2016 bags of rice has been selling for ₦23,500 instead of ₦ 6,500. The way things are, if the prices of food items continue to rise the way they are going, the poor in this country will starve to death. The question is what do we do to curb the imminent crisis staring us in the face? A rice farmer, Mrs. Olufunke Mudashiru wondered why the Government should import rice to the tune of ₦80 billion when Nigeria have large fertile land suitable for growing rice. She said, "I do not see reason why we are importing rice because this country is blessed with vast area that are favourable to massive production of rice". We have areas we can grow such rice as Ofada rice in Ogun state, there is also Abakaliki in Ebonyi state and some areas in the North". Just as she stressed the need for Government to provide necessary agricultural equipment for farmers to enable them cultivate enough rice for the country, the actualization of the Ajaokuta Steel Company Limited becomes very necessary to ensure availability of equipment for the production of abundant food for the populace.

As an industry and wealth creator for the nation metallurgical industry is supposed to be second to farming. The company should be responsible for the production of different types of metals and alloys for usage in various sectors of the economy including agriculture. The company can handle different types of farm implements, spare parts and machinery for farming processes. The availability of these metals at a cheap rate will greatly contribute to the development of agric-mechanization in the country. The metal produced from the steel company would be used to fabricate different types of farm machinery and spare parts that could be used in agric-mechanization. The production of these metals is possible only if the steel company is well established and allowed to meet the demand. The non-completion of the steel company will mean that the plan for agric-mechanization will only end up in our imaginations. It should be made known that we need to create and develop indigenous technology in order to use the facilities of the steel company to fabricate our farm machinery. In the absence of indigenous technology, the next alternative would be to embark upon the importation of farm machinery. This would result to costing the Government huge sums of money due to foreign exchange. For this reason, there is great need to complete the steel company, and sustain it in contributing towards the development of agric-mechanization nationwide [11].

Steel and Transportation

Transportation is one of the very important linkages of the steel industry. For instance a 1.3 million tonnes/annum capacity steel company will require the movement of over 5 million tonnes of raw materials and products. This certainly poses an important annual transportation challenge. This will require the development of road, rails and waterways. It will lead directly and indirectly to the employment of thousands and thousands of people.

Also to be noted is that 70-75% of automobiles are made up of steel (Hogan, 1993, Ilori, 1996). The percentage for railway tracks and cabins is even higher. Therefore, if Nigeria ever hopes to be able to meet her transportation facilities requirements, without having to depend indefinitely on foreign suppliers, the company must be completed and allow to operate on a full scale.

Steel and Health Care

It can be observed that many health care delivery equipment and facilities are steel based. For example, scissors, bowls and dishes, trolleys, beds, chairs and some operating and diagnostic tools are steel based.

This is another important reason why attention must be paid to the Ajaokuta Steel Company Limited for the realization of these objectives.

Steel in Defence (Armaments)

Defending a country's territorial integrity against external aggression is one of the most important functions of the present day nation state. Modern military armaments and ammunitions are all based on steel. Military armaments may be imported from other countries willing to sell. However, two very important observations must be made:

- No country will supply armaments that are sufficiently advanced to another country. Only second or third-rate armaments, which the supplier country is phasing out, are supplied to the buying country.
- At the first sign of problems, the advanced and supplying countries get together and "impose an arms embargo" on the target country or countries. The European Union imposed an arms embargo on Nigeria from 1996 till 1999.

It is very clear that in order to be truly independent, Nigeria must acquire the capability to manufacture her own military hardware and this translates directly to a compulsory development of the company because of the benefits that could be derived in terms of manufacturing her own armaments, nuclear weapons and other war equipment. Today India, Pakistan and North Korea have nuclear capabilities. India successfully tested a long-range ballistic missile and today North Korea is threatening South Korea, America and some part of the World because of their breakthrough in armaments creations. All these would not have been possible without a virile steel industry. In his paper titled "Steel in Defence" Major S.K. Oni, of the National Institute of Policy and Strategic Studies, stated, among others, that "At present, Nigeria relies on overseas purchases to equip her armed forces and other security forces. The disadvantages of this are many. It is obvious that any further delay in the completion of Ajaokuta Steel Company will not be in the overall interest of our defence policy in view of the strategic role of steel in defence" (Oni) [12].

Let us draw from this lesson on the invasion of Iraq by the Americans and the British Governments and their inability to cope with the challenges of the North Korea, or even to easily run over Iraq, that unless a country produces and uses the armaments needed to defend its people, territory, resources and sovereignty, it shall be subjugated and enslaved. The core of this modern technological base is an Iron and Steel industry like the Company and for company to serve the purpose for which it is established, ownership and control must remain in the hands of the Government and people of our Nation (Nigeria) and not foreigners who whenever it suits them, manipulates the steel company, imposes and effects sanctions. A lot of money has been sunk into the company. Almost all the past leaders of the Country lack the long term vision and patriotic will to complete the company and operate the steel industry. Some of them have been further confused by the major steel powers and their international collaborators like the International Monetary Funds, the World Bank and World Trade Organization hence there lack-cluster approach to completing the steel company.

For some of them, it is pure unmitigated greed. They simply want to steal the money needed for the company and this company is the necessary backbone for any form of sustainable national development for the country in the immediate and distant future. According to a pioneering Nigerian Economist, the late Dr. Pius Okigbo, in a lecture delivered at Institute Management and Technology, Enugu in 1980,

warned that “No country can claim to be industrialized if it does not develop metalworking industries: it must have its own steelmaking as the basis of the ferrous metal industry. The steel fabricating industries multiply beyond count. The key lies in the establishment of iron and steel industry as the basic unit of any serious industrial development”.

Steel and Employment Opportunities

The steel company has the prospect of employing a large number of the nation’s labour force. The Steel company itself is expected to employ more than ten thousand workers directly while it will create employment for millions of Nigerians indirectly through the upstream and downstream industries. This will further help to alleviate the ridiculous unemployment problem of the nation. As an important element of industrialization, the Ajaokuta steel industry is vital for developing linkages with all other sectors of the economy. Let us consider the setting and operation of a typical iron and steel company [13]. On the one side are sets of inputs that must go into an intricate progression of production processes, ranging from raw materials (Iron ore, coal, refractory clay, limestone, dolomite etc.) through energy and utilities (electrical energy, gaseous and liquid fuels and water) to operating spare parts and consumables. Each of these inputs can generate an upstream activity. On the other side are sets of outputs, which serve as inputs for other industries and/or applied as finished products. Downstream industries can be set up using these outputs, which include metalworking and forming (forge, fabrication, machining, drawing, stamping, etc.) iron and steel foundries, pipe and tube making companies, etc. The products from these works form the major inputs for other bigger industries like automobile, engineering and machine tools, agro-allied, construction and various consumer goods manufacturing industries, etc.

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