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RESEARCH ARTICLE

An Appraisal of the Sources, Quantities and Prices of Imported Building Materials in Nigeria.

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Abstract

The study ascertained the major source of a wide range of imported building materials in Nigeria, the proportion of imported materials in comparism with locally produced materials and the extent of price differentials between both types of materials. Three building materials, namely: cement, steel and tiles were the price focus while the major building materials markets in Lagos, Enugu, Rivers and Anambra states of Nigeria as well as price data from 2004 – 2011 formed the study target and scope. Field, market surveys and interviews were used to obtain sources, and prices. Insights received through the survey revealed that most building materials in Nigeria are sourced from China. Local building materials account for 37% of materials in the Nigerian market, imported materials is 23% and 40 % for both combined local and imported products. Price differences of up to 3% to 15% exist between local and imported materials. Recommendations advanced were that while taking steps such as supporting indigenous research, building infrastructure, devising policies and regulations to encourage the local manufacture of building materials and reduce importation, the Nigerian Government should also convince the Chinese government to invest in its building materials industry to reduce capital flight, create more employment and improve the living standard of Nigerians.

Introduction

Mogbo (2001) and Abiola (2000) identified building materials as one of the principal factors affecting the effective performance of the Nigerian construction industry. The building materials sector is thus a major contributor to the construction industry because materials constitute the single largest impact in construction often accounting for over fifty per cent (50%) of the total cost of construction (Ezeokwonkwo, 2010; Mogbo,1999; Okereke, 2003; Oyediran and Odeniyi, 2009).

According to Adogbo and Kolo (2009), there is an ever increasing demand for import-based innovative products in Nigeria which has also led to a decline in quality of its indigenous materials. This high dependence of Nigeria on importation, according to Atolagbe (2009), was due to the increase in oil wealth, the need to achieve economic growth, cost of quality, lack of infrastructures and the over-valuation of local currency which tends to make import cheaper than domestic production.

From the afore raised issues, the import-dependent nature of Nigeria as any other import-dependent nation creates a trade imbalance as affirmed by economists and thus makes it pertinent to know the major sources of her imported building materials, the proportion of such imported materials in comparism with locally produced materials and the

extent of the differences in prices of both in the building market. Sequel to this too, a pertinent question needs to be asked by concerned stakeholders: If these imports have
some negative effects on the economy, why have they not been discontinued?

The study intends to give provide more insight and strengthen existing literature on the present situation of importation of building materials in the country, isolate the major source of building materials of importation in Nigeria. This is because when such source or country is known, the radar of the Nigerian government can be focused in that direction for proper monitoring and regulations, quality checks, imbibing of procedures and characteristics that make the products attractive to consumers, possible partnership and investment opportunities. Price differences observed between imported and local materials will also spur the Nigerian government to boost local production. The Nigerian government and its relevant agencies will also find this work helpful as it also explored the economic effects of importation. Construction professionals like Quantity Surveyors will also find such price differences handy during the estimation of project costs, and when comparing costs of alternative design and specification proposals. It will also be of great benefit to importers, suppliers and marketers since it also informs that certain materials which are still being imported are also produced locally.

The Problem

A number of problems observed by the researchers (which were also prime motivation for the study), characterize the sources of imported materials in Nigeria. They include: non-harmonized system of importation and lack of control in the ordering and importation of building construction materials, expensive imported building materials which has raised housing cost, capital flight and undermined exchange rates, insufficient locally produced building materials, lack of advanced materials technology in Nigeria which has led to unbridled taste for imported materials and also made importation a very booming market.

Purpose of the Study

The research focuses on identifying the major source(s) of imported building materials in Nigeria, assessing the proportion of these materials in comparism with locally produced materials and evaluating the price differences between local and imported building materials. Specifically, the following objectives were set out to achieve the stated purpose.

- To carry out an inventory of materials in the Nigerian building materials market, with a view to identifying the major, common or largest sources of imported building materials.
- To obtain the ratio or percentage of the quantity of local to imported building materials in Nigeria.
- To carry out a market survey of the building materials under study with a view to ascertaining the extent of the price differentials or variations between local and imported materials.

Review of related Literature

The Nigerian Construction Industry: Challenges and Prospects

El Rufai (1993) referred to the construction sector as a 'capital goods' industry because its products and services do constitute the basis where other economic activities are built upon. Ajanlekoko (1990) further affirmed that the building/construction industry is the prime motivator of the Nigerian economy and it represents 60 percent of capital investment . In the view of Wells (1987) this value could rise when the contribution of building materials industries is included in the computation of the construction industry's contribution to GDP. Dantata (2008) asserted that over d last decade, several changes have occurred in Nigeria which, which helped all sectors of the economy, especially the building and construction sector. With a double digit growth in d last three years, the construction sector has outgrown all other sectors of the Nigerian economy. However, its contribution to the Nigerian GDP is still very low.

Despite the significant importance of the building/construction sector to the economy of Nigeria; its impressive performance, the Nigeria's construction sector is yet to realize its full potentials. The industry faces a significant number of challenges such as security challenges arising from Islamic extremists, unfavourable business environment, regulation, policies, politics, misappropriation, corruption and unethical practices. Other constraints include dearth of local skilled manual labour, relatively high cost of hiring staff at managerial level, power shortage, shortage or unavailability of building materials like cement, over dependence on foreign products (expatriates and importation), lack of adequate and poor implementation of Industrial Standards (Oladapo and Oni, 2012). In addition to this, poor implementation of policies and strategies has rendered its market stagnant, underdeveloped,

making it a haven for poor quality building materials. However, the good news is that several opportunities still exist in the industry especially in ICT, education and subcontracting sectors which makes it very attractive for investors.

Types of Sources of Building Materials in Nigeria

a) Local sources

Local building materials thrived predominantly on indigenous raw materials, technology and styles, the materials, technology and the communal building process were intimately knitted with the climatic condition, socio-economic and cultural values of Nigeria (Oluyode, 1988). Consequently there have been calls for the return to local materials, this has led to the establishment of center for earth construction technology (CECtech) by the National Commission for Museums and Monuments and the French Embassy in Lagos as efforts toward promoting the use of earth technology as a partial or complete substitute for block work, flooring etc. The Raw materials institute and the Directorate for Food, Roads and Rural Infrastructural (DFRRI) was also set up by government to encourage the utilization of local building materials in the construction of building. DFRRI was the first to initiate the use of local raw materials in the construction of roofing sheets in Nigeria (Oladapo and Oni, 2012).Similarly, The Nigerian building and roads research institute (NBRRI) an agency of the Ministry of science and technology is saddled with the responsibility of researching on and developing appropriate local materials for the Nigerian building and construction industry and to determine the most effective and economic methods of their utilization (NBRRI, 2014).

Numerous local available resources exist in Nigeria which can be exploited including small-scale raw material deposit, agricultural products and residues, industrial wastes, low cost and renewal sources of energy and established technologies which can readily be applied to the local production of low cost materials (Oladapo and Oni 2012). Okereke (2003), identified sources of raw materials on which local building materials rely and categorized them into three classes, namely: naturally occurring raw materials deposit, agricultural products and residues, and products of manufacturing process.

Some key factors have however been identified as constraints to the realization of the full potential of local materials in Nigeria, these include, poor quality of product which is as a result of non compliance with standards (Oladapo and Oni, 2012), low demand for local materials in construction, and inappropriate used of local building materials in construction (Sanusi, 1993). A number of possible reasons have also been identified for the low patronage of local building materials and these include; doubtful durability and life span, low aesthetic value, poor finishing, lack of standard and poor commercial status.

b) Imported sources

Imported building materials are those building materials that are either manufactured outside the country or its raw materials sourced from overseas and brought in for construction purposes (Atolagbe, 2009). Importation is a key part of international trade and the importation of capital goods (building materials inclusive) and is vital for economic growth. Imported capital goods directly affect investment which in turn constitutes the motor of economic expansion (Sa'ada and Hassan, 2008). The importation of building materials started in the 1920s.

Ayeni (1997) noted that the Nigerian construction industry has been importing at least 48% of its building materials. Olowookere (1998) also stressed that the degree of dependence on foreign sourced materials amounts to about 78%. Similarly, Owoye (2003) reported that the construction industry in Nigeria imports about 60% of its raw materials, while Qalitheia (2010) puts it at over 70%.

According to Egwaikhide (1999), and the National Bureau of Statistics(NBS) (2012), importation of building materials has since then grown substantially since the country's political independence in 1960, the nominal value of building materials imports leapt from ₦130 million in 1960 to over ₦ 60 billion in 2009. Figure 1 buttresses this sad scenario.

Importation no doubt creates room for globalization and international trade which accelerates development, gives variety of building materials, promoted specialization and application of the principle of comparative advantage on a global scale (Mbamali and Okotie, 2012), but Nigeria is a developing country with unbridled taste of foreign materials which has left her building practice still grappling with a lot of inherent challenges ranging from inadequate technical and managerial knowhow to insufficient financial, material and equipment capital base

(Oluwakiyesi, 2011). In line with figure 1, Adeniyi (1985) affirmed a gradual decline of locally manufactured building materials and massive importation of building materials which greatly widens the gap between imports and export. Economists have established that this is not healthy for an economy.

Worthy of note, is that importation of building materials can pose threats as well as create opportunities in the Nigerian economy (Ofori, 2001; Chartered Institute of Building(C.I.O.B), 2004; Idoro, 2009; ; Mbamali and Okotie, 2012). The following highlights this;

a. Threats:
- Foreign companies having a larger share of available projects.
- Erodes trade balance: import of building materials being much higher than the export.
- More import of professional service than export.
- Diminished opportunities for indigenous professionals.
- Diminished opportunities for local contractors' growth due to competition from their more capitalized and better equipped foreign counterparts.
- Eradication of indigenous cultural identity expressed through buildings and the built environment.
- Obsolescence of some local skills due to changes in technology.

b. Opportunities
- Industrialization, globalization, international trade and liberalized economy.
- Larger market due to involvement of international financial, direct foreign investments on projects which leads to increase in construction demand.
- Healthy competition between foreign and local firms enhances value for money on projects.
- Possibilities of technology transfer which aid development of local firms.
- Increased intelligence sharing and application of information technology among indigenous companies and their foreign counterpart brings about variety of building materials, styles and design due to exposure to larger international market.
- Improved opportunities for exports, linkages and operations beyond Nigeria's borders.

Salient issues on Local Production and Importation of some Building Materials in Nigeria.

a) Cement

The demand for cement is the function of construction activity spurred by the growth and development of an economy and the continuous inflow of investment into the development of both residential and commercial estates construction by government, corporate and private developers African Iron and Steel Association (AISA), 2010). The cement industry thrives in growing economies where new construction projects are continuously springing up. Nigeria is a typical example of this scenario. Globally, the cost of cement production is high with energy being the major cost driver. In Nigeria, energy accounts for about 40% of the total cost. Each tone of cement requires 60-130 kg of fuel oil or its equivalent, depending on the cement variety and process used, and about 150 KWh of electricity. The main source of raw material necessary for cement production is limestone, it is cheap to obtain and is in abundance in Nigeria. It is a natural resource that constitutes approximately 10% of sedimentary rocks exposed on the earth's surface (Orazuike, 2002).

AISA (2010), further established that the Nigerian cement industry grew rapidly from about ₦26 billion 2004 to an estimated valued of ₦134 billion in 2008. According to industry sources, the estimated total consumption grew by 8% to 14.8 million tonnes in 2009, and approximately 10.5% annually over the last six years. The potential aggregate demand for cement is in excess of supply and estimated at 18 million tonnes. Although Nigerian's Cement consumption continues to rise, per capita usage, consumption per head is low by global standards, and as evidenced by the housing deficiency of about 12 million units and relatively poor infrastructure within the country with a population of about 150 million. Nigeria's per capita consumption is at about c.180kg as at 2011, a far cry when compared to UAE's 4,198Kg, China 1,055kg and Saudi Arabia 1294 kg (AISA, 2010; Oluwakiyesi, 2011).

According to AISA (2010) and Oluwakiyesi (2011), historically, capacity limitation in local cement production has led to a virile import market in Nigeria. According to the international cement review magazine, Nigeria imported an annual average of 10 million tons over the past five years to 2008 (*see figure 2)* By 2009, the volume of imports started to decline as local manufactures expanded their capacities out of the estimated 14.8 million metric tons of cement consumed in 2011, only about 4.44 million metric tons (i.e. 30% of total consumption) was imported, compared to 6.3 million metric tons 43% 2009 and 8.2 million metric tons i.e. 58% in 2008 .

Even with the phenomenal rise in local production, it is important to note that most of the cement plants (perhaps with the exception of Dangote cement's Obajana plant and Lafarge WAPCO's Ewekoro plant) are still operating below full capacity This implies that there are some potential for growth from existing capacities, also more plants (Ibese, Lakatabu, and Obajana line 3) are expected to become operational. As shown in figure 3, Nigeria, like Russia is one of the top cement importers because of the cement demand supply imbalance. This is however, gradually declining with significant new domestic capacity added.

b) Steel

Agbu (2007) described steel is an alloy of iron and carbon, the carbon varies from 0.04-1.7%. Also, by nature of raw materials and method of manufacture all steel contains varying amounts of sulphur, manganese, phosphorus and other trace elements.

Planning for the Nigerian steel industry began around 1958, when iron ore was discovered in located at Aladja, Itakpe and other parts of Kogi state, (Mohammed, 2002). In April 1971, the Nigerian Steel Development Authority (NSDA) was established by a Military Degree (No 9 of April 14, 1971) and thus became the first formal body to be charged with the supervision of the steel program in Nigeria. NSDA was charged with the planning, construction and operation of steel plants, and carrying out geological surveys, market surveys/studies and metallurgical research and training (AISA, 2010).

According to Orazulike (2002), the National Iron Ore Mining Projects had an installed capacity to mine and process 2.15 million tones of 64.0% concentrated iron ore for the Ajaokuta steel company and 0.55 million tones of 68% super concentrated iron ore for Delta steel company, thereby bringing the factory's cumulative stockpile to 2.7 million tons in 1979. In 1993, the raw materials produced stood at 2.293 million tones. In 1994-1995 production year, output declined by 71,014 tonnes i.e. 42.2% from 239,275 tons in 1994 to 168,261 tonnes in 1995. The average capacity utilization rate decreased from 2.7% to 2.0% within this period. This unimpressive trend was blamed on inadequacy of working capital and obsolete inefficient machinery.

With this trend, the nation depends on private mills and importation to satisfy her iron and steel needs for industrialization. The additional steel making facility available in Nigeria are largely complementary of ferrous scrap based plants (Mini mills) operated by the private sector. The total installed capacity in this area is a mere 580,000 tones. According to the reports of AISA (2010) these rolling mill facilities are capable of adding another 570,000 tonnes of finished steel to the market annually. The current total national products rolling capacity is 2.64 million tonnes annually from the existing public and private companies.

Currently, the Nigerian steel industry is in a moribund state, even as Ajaokuta steel (Nigeria's main steel producer) is performing sub-optimally. Not surprising then, Nigeria's per capital steel consumption which is less than c.10kg, which is awfully low in comparison to other African countries like South Africa (c.112kg), Egypt (c.95kg) and Algeria (c.38) (Oluwakiyesi, 2011).Nigeria imports steels from countries like China, India, Japan and Turkey.

AISA (2010) estimated the iron and steel consumption in Nigeria at about 12 million tons per annum, indicating that Nigeria imports about 9.36 million tons annually. This implies that there would still be a shortfall of about 3.16 million tones even if the Ajaokuta steel company (annual capacity of 5.2 million tons) and Delta steel company (annual capacity of I million tons) becomes fully operational. With the Delta steel company and Ajaokuta steel company almost non operational, it is evident how far the Nigeria's steel industry is, from optimizing its potentials. Figures 4 and 5 depict this scenario.

c) Floor Tiles

A tile is a manufactured, thin square or rectangular piece of material such as ceramic stone, metal, baked clay, concrete, cork or even glass. Tiles are generally used for covering roofs, floors, walls, showers or other objects such as tabletops. Tiles are sometimes referred to as similar units made from lightweight materials such as wood and mineral wool typically used for wall and ceiling applications. The word tile is derived from the French word '*tuile',* which is gotten from the Latin word '*tegula'* meaning a roof tile composed of fine clay. Tiles are often used to form wall and floor coverings and can range from simple square tiles to complex mosaics. Tiles are most often made from porcelain, fired clay or ceramic with a hard glaze or other materials such as glass, metal, cork and stone. Orazuike (2002) surmised that the major raw material for the production of tile is clay which Nigeria has in abundance. Clay can be found in Sokoto, Gombe, Kano, Niger, Kwara, Ogun, Plateau, Oyo, Ondo, Cross Rivers and Akwa Ibom states and all eastern states in Nigeria

Tiles or fire clay are basically inorganic, non-metallic solid materials produced by techniques of heating and subsequent cooling. In 2010, world tile production amounted to 9.515 billion square meters, although much of that growth was concentrated in Asia and Europe with China in the world top manufacturing country with 4,200 million square meters i.e. 44.1% of world production and also world leading consumer with about 3,500 million square meters at is about 37.4% world consumption and also world leading exporting country with about 705 million square meters is about 36.8% (David, 2011).

David (2011) further asserted that Nigeria is a net importer of tiles, importing virtually all the tiles used in the country. She imports her floor tiles from countries like, China, Italy, Brazil and Spain and is highest importer in Africa. Nigeria ranks as the 13th top importer of tiles in the world with 100% national consumption and about 1.6% of world imports. Figure 6 shows the quantity of tiles imported in Nigeria from 2006 to 2010.

Effects of Foreign Exchange Rate on the Prices of Construction Materials

In Nigeria, building materials and other components incorporated into construction are sourced from overseas. Likewise, some of the materials produced locally also depend to some extent on foreign inputs, hence, the need to discuss the effect of foreign exchange and its inherent problems in the construction industry.

Economists generally agree that openness to international trade accelerates development. (Obadan and Okojie, 1998). It is also obvious that a developing economy like Nigeria has very little opportunity to achieve productivity and efficiency to support growth without tapping into larger markets, through external trade. Nigeria's relatively large construction market can support growth, but cannot alone, deliver sustained growth at the rates needed to make a visible impact on the construction industry; hence her continued reliance on foreign markets (World Bank, 2002).

The nexus between the import-dependent nature and the socio economic significance of the Nigerian construction industry has made studying the effects of foreign exchange rate on prices of construction materials a relevant issue. The high cost of construction materials is a significant factor for the high cost of finished products particularly in developing economies. A reason adduced for this lack of economies of scale is the highly import-dependent nature of the industry. According to Oyediran and Odeniyi (2009), import–dependent materials are subject to foreign exchange, fluctuations and imported inflations from the economies where those materials were imported. Materials constitute the single largest input in construction, often accounted for over half of the total cost of construction products. Thus, efforts at addressing the cost of construction must aim strategically at considering the cost of materials.

Oyediran and Odeniyi (2009) explained that the over-dependence of Nigeria on importation has not changed rather; the dependence on foreign materials is on the increase. It requires huge capital in foreign currencies to procure these resources; therefore any variation in the Naira-foreign currency value is bound to have a negative or positive effect on the prices of these products. The combined effects of the importation of construction materials and foreign inputs in the locally sourced or manufactured materials are the transfer cost attributed to the foreign exchange.

Analyzing the foreign exchange goods in Nigeria, finished products cost more because importers tend to add the adjusted price differentials on their products, which consequently, will be passed on to the consumer. The same holds for a manufacturer who depends on imported raw materials. One can thus, conclude that the movement in foreign exchange value and rates affects domestic prices of construction materials and products. Figure 7 highlights the effects of currency devaluation and inflation in an import-dependent economy.

Weneso, Nduilor and Nse (1997), emphasized that the effects of foreign exchange rate of the naira against the US dollar could push up the cost profile of business organizations, which will eventually be transferred to the consumer by way of higher prices. They are also of the view that the value of naira in the international market is inversely proportional to price of goods in the economy, and this is more pronounced on cost of goods that are described as necessities of which to a certain degree, construction materials and products are included. It is obvious then, that foreign exchange rate affects the economy of Nigeria in no small measure.

Methodology

Data Collection Sources and Methods

The relevant data used for this study, was generated via field and market survey. Details of results were also presented; using tables and charts for proper elucidation. Market survey was employed to obtain an inventory of building materials, as well as the price differences of local and imported building materials. Prices obtained were restricted to three types imported building materials; cement, reinforcement bars and tiles. The researchers elicited the sources of importation of building materials and the reasons for price differences observed, via oral questions asked material dealers (suppliers, marketers and importers) in four major commercial states of Nigeria, namely: Lagos, Enugu, Rivers and Anambra States. These states also served as the locations for the market survey and helped achieve an even spread across the country. To ensure reliability/accuracy and verify answers provided, further checks were made on similar materials dealers, randomly selected. In addition to this, importation/customs papers and documents were studied and compared with answers provided.

Data Analysis

Data collected from the market survey were subjected to comparative and descriptive analysis such as using pie charts, tables, and percentages. The simple percentage method was adopted, to determine the proportion of items (specifically, importation sources) in a classification of one hundred (100).

$$\text{Simple percentage } (\%) = x/n \times 100 \quad (1)$$

Where:
x = specific number of items or importation sources.
n = total number of sources of imports surveyed.

Data Presentation, Analysis and Discussion of Findings

Inventory of Building Materials in Nigeria.

From a comprehensive field survey of building materials markets in Nigeria, it was possible to obtain a list of various building materials (*table 3*) used in Nigeria as well as their sources. It was observed that most imported building materials are sourced from Asia with China being the lead source.

Furthermore, from the number of materials either produced locally or imported or produced both locally and imported a summary of their respective quantities as well as their percentage contributions was obtained. The descriptive analysis (table 4) revealed that locally produced materials accounted for about 37%, while imported only materials accounted for about 23%. A considerable proportion (40.0%) was however shared by both local and imported materials. These were also represented in a pie chart (*figure 4*) for pictorial elucidation.

From Table 4, it will be observed that the prices for those materials imported and produced locally were clearly indicated. A closer look reveals that cement and reinforcement fall into this category. The years 2008 and 2010 were deliberately left out, as the prices recorded at that period were the same as that of 2007 and 2009 respectively.

The price differentials observed between the local and imported cements were consistent. For the years 2004, 2005, 2006 and 2009, the difference recorded was N100; a percentage difference of 12.5%. For the year 2007 is was N150; a percentage difference of 9.4%, while in 2011, it was N50, with a percentage difference of 2.63%.Percentage price variances for various sizes of the reinforcement bars range from 3% to 15%. Local Prices for tiles, except PVC could not be obtained since the bulk of their sources come from abroad.

From the oral interviews, material dealers gave reasons for these price gaps as; imported inflation, deliberate hiking of prices by material dealers because of perceived better quality and ease of sale or high demand, customs and import duties, distribution networks, logistic problems, high exchange rates.

Summary and Conclusions

The field survey of the study gave an insight on the sources of imported building materials in Nigeria, ratio of imported to local materials and the price differences between both. for the materials under study for which cement, reinforcement and tiles were the focus. Findings suggest that China is the major source of building materials in Nigeria, locally produced materials account for 37% quantity of total materials in the Nigerian market, imported materials, 23% and 40 % for combined local and imported products. Price differences exist between local and imported materials at varying percentages ranging from 3% to 15% and this obviously is a contributor to the increases in construction cost and cost of owning houses being witnessed in the country. These price differences were attributed to factors such as imported inflation, deliberate hiking of prices because of perceived better quality and ease of sale or high demand, customs and import duties, distribution networks, logistic problems, high exchange rates.

In line with the forgoing summary, the study is inclined to conclude that the imported materials, especially from China are still competing favourably with locally manufactured materials. In other words, taste for foreign made goods has not dropped. Furthermore, even if the price differentials between imported and local building materials may not be so alarming, it still has some negative effect on the Nigerian economy, including its exchange rate. A solution to importation in its entirety and its effects on the Nigerian economy obviously lies in returning back to indigenous practices.

Recommendations

In view of the findings of the study, the following recommendations are made:

- China , being the major exporter of building materials to Nigeria should endeavour to increase her investment in Nigeria, by building materials industries. This will reduce capital flight, create more employment and improve the living standard of Nigerians.
- Since it was observed from literature, that a number of imported building materials can also be produced in Nigeria because the raw materials are available in large quantities, the federal government should diversify the economy by going into mining and production of such raw materials. This will boost local production.
- Nigeria should not subscribe to International market forces, rather, an aggressive policy should be put in place through adequate legislation to encourage not only domestic sourcing of building materials but also, to ensure their protection and local consumption.
- There should be concerted and focused efforts by the Government in supporting research institutes and universities in studies for the manufacture and improvement of domestic building materials.
- There should be the political will on the part of Government also, to device policies that encourage cheap local production (products). Local manufacturers should also have some form of tax relief.

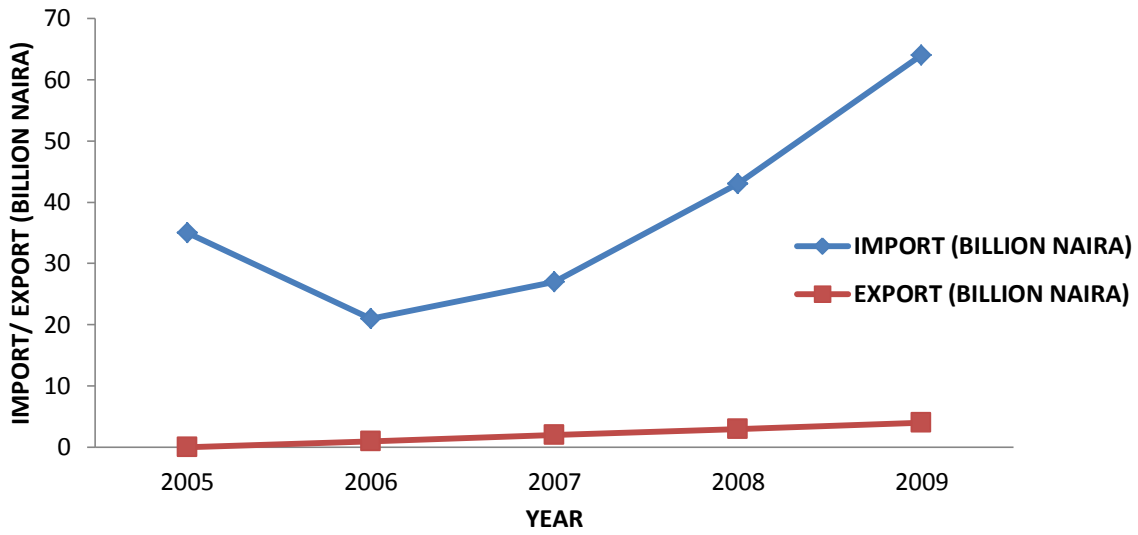

Figure 1. Volume of import and export of construction materials in Nigeria (N.B.S, 2012 ; Mbamali & Okotie, 2012)

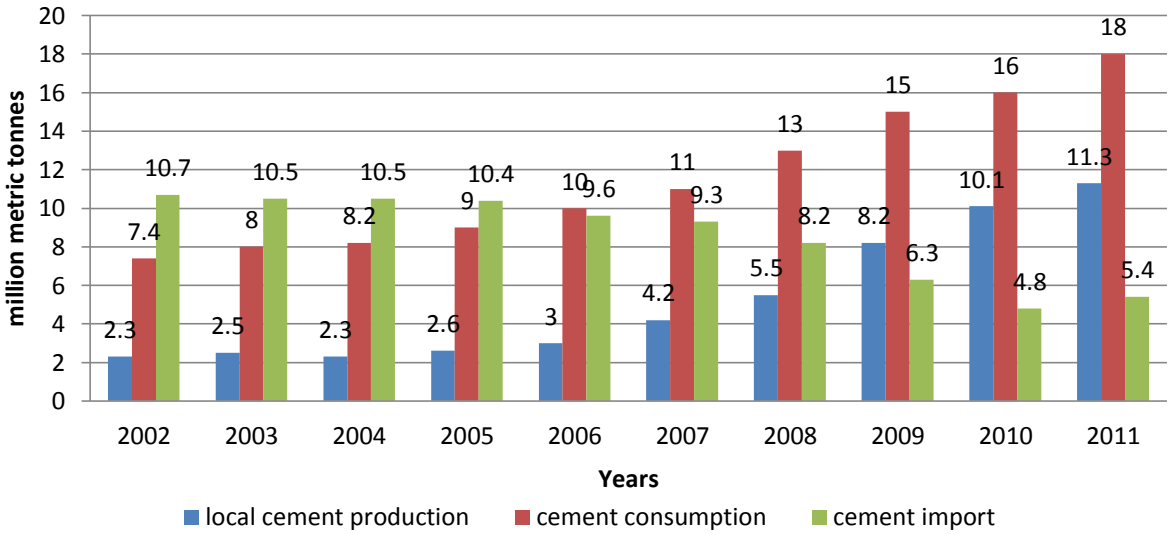

Figure 2. Cement Usage in Nigeria from 2002-2011 (Central Bank of Nigeria (CBN); AISA, 2010; Oluwakiyesi, 2011).

Table 1. Capacity of local cement companies in Nigeria.

Parent/Group		**Capacity** (In metric tonnes)	**Capacity** (In metric tonnes)	**Estimated capacity** (In metric tonnes)
		2009	**2011-2012**	**Post 2012**
Lafarge WAPCO	Lafarge S.A	2.20	2.00	4.20
Ashakacem	Lafarge S.A	0.80	0.20	1.00
CCNN	BUA	0.50	0.75	1.25
BCC	Dangote	0.50	2.30	2.80
Edo Cement	BUA	0.35	1.65	2.00
Obajana	Dangote	4.50	3.50	8.00
Ibeshe	Dangote	0.00	5.00	6.00
Unicem	LafargeS.A./ Flour Mills	2.50	0.00	2.50

Total	**11.3**	**15.4**	**26.75**

Source: AISA (2010).

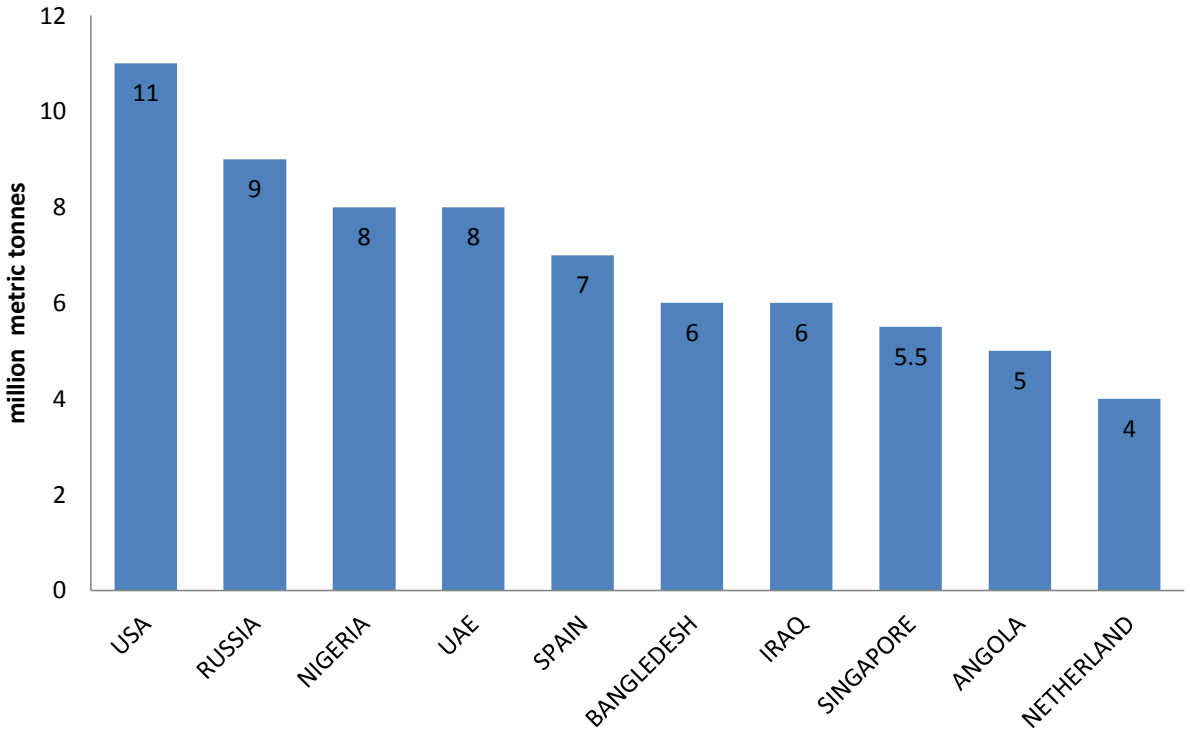

Figure 3. World's top 10 importers of cement (AISA, 2010).

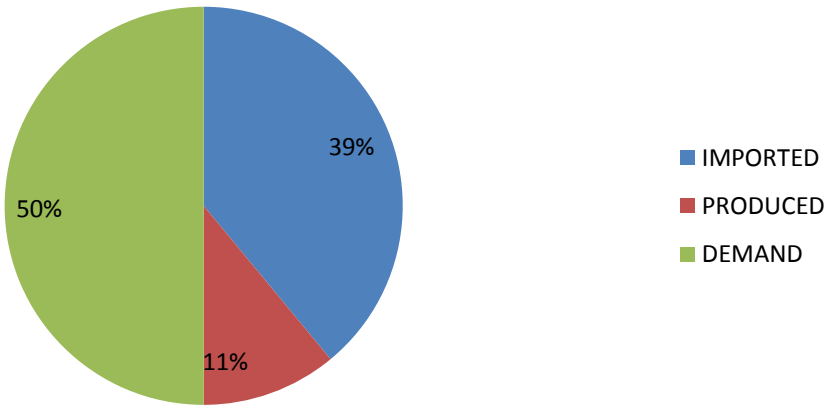

Figure 4. Pie chart representation of the amount of steel demanded, produced and imported in Nigeria (AISA, 2010).

Table 2. Nigeria's import of tiles from 2006-2010

Year	**2006**	**2007**	**2008**	**2009**	**2010**
Amount in million Sq. m	27	22	30	29	30

Source: David (2011).

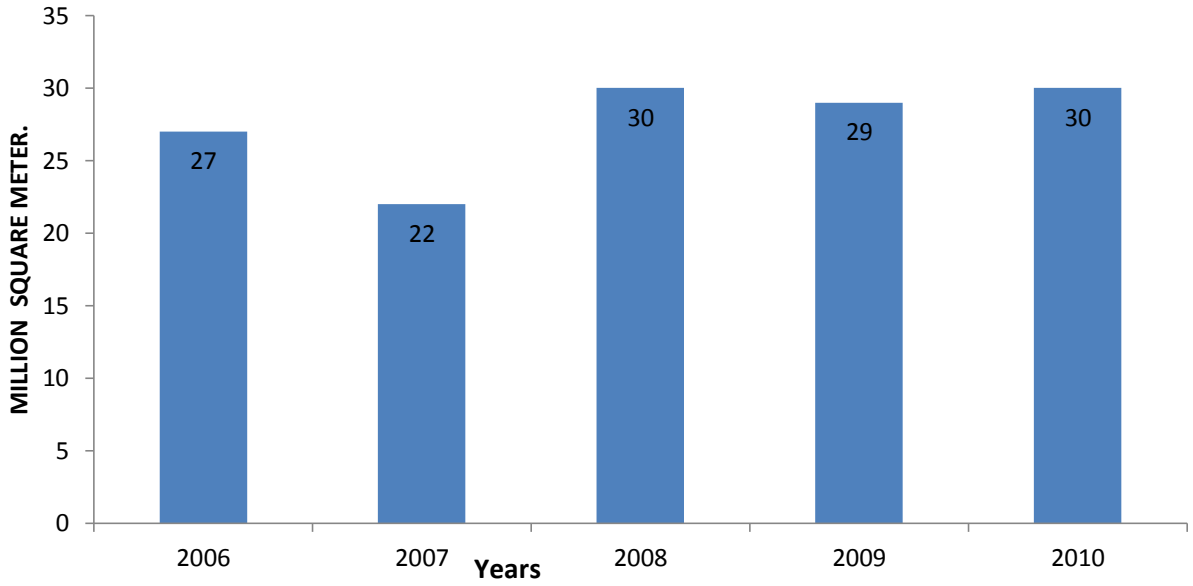

Figure 6. Nigeria Tiles Imports Form 2006-2010 (David, 2011)

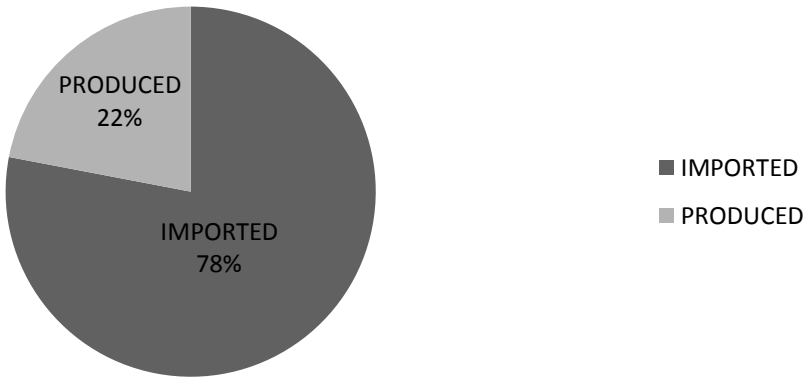

Figure 5. Pie chart representation of the amount of steel produced and imported in Nigeria (AISA, 2010).

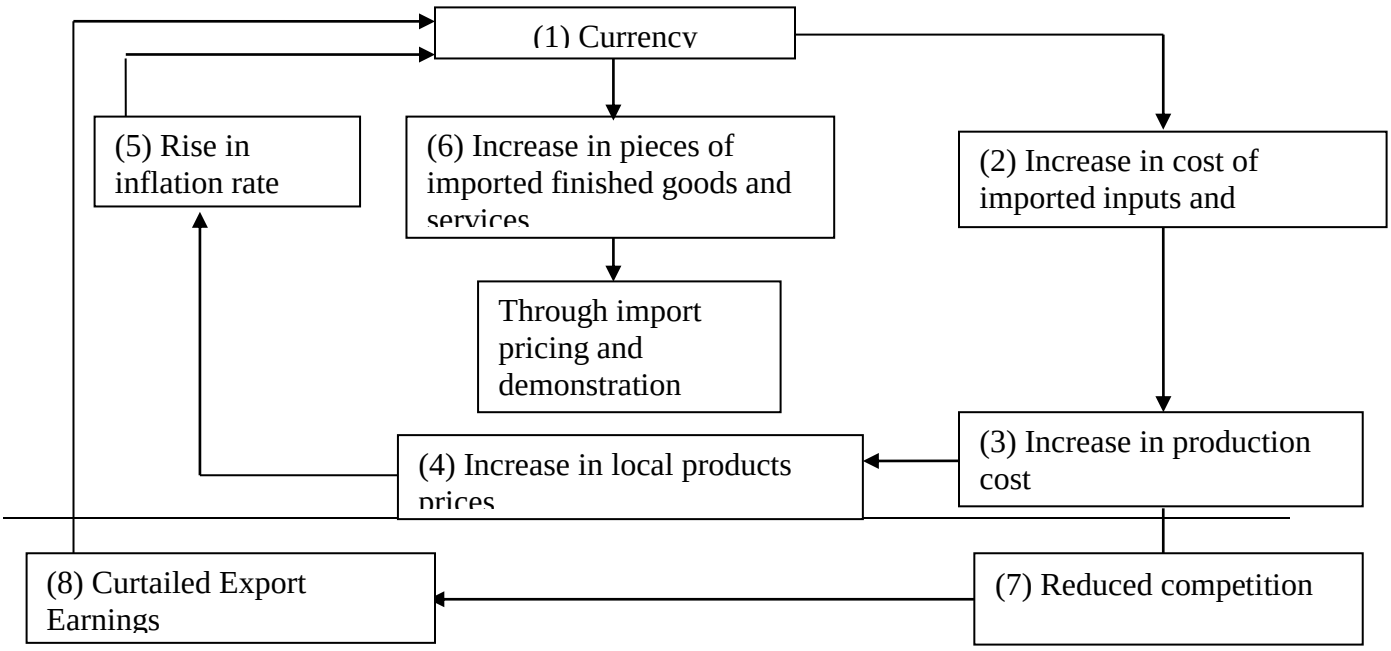

Figure 7.Model of the currency devaluation and inflation trap in an import-dependent economy (Oyediran and Odeniyi, 2009).

Table 3. Inventory of materials in the Nigerian building materials market.

S/N	Types/Description Of Material	Local	Imported	Source
1	Stones (Laterite, hardcore, granite/gravel)	Local		Local
2	Sand (sharp sand, plaster sand etc)	Local		Local
3	Sandcrete blocks	Local		Local
4	Reinforcement (High tensile)	Local	Imported	U.K, Turkey, China & India
5	Mild steel reinforcing bars	Local	Imported	U.K, Turkey, China & India
6	Steel wire mesh fabric	Local	Imported	Turkey, China & Malaysia
7	Binding wire	Local	Imported	U.K, China
8	Polyethene sheet	Local	Imported	China, India
9	Burnt bricks (floor bricks, roof bricks etc)	Local	Imported	India, Indonesia, China, Pakistan & Malaysia
10	Aluminum roofing sheet		Imported	USA, India, Malaysia & China
11	Corrugated iron roofing sheet	Local		China
12	Slates, clay tiles and concrete roofing sheet	Local	Imported	China (mainland)
13	Asbestos ceiling sheet	Local		Local
14	Felting material	Local		Local
15	Wooden doors (flush, panel floors etc)	Local		China, Italy, Germany
16	Metal doors (Iron, bullet proof etc)	Local	Imported	India & China, Italy
17	Finger joint	Local		Local
18	Nails (concrete, ordinary, etc)	Local	Imported	India & China
19	Timber (different sizes, tie rods, plywood etc	Local		Local
20	Metal works	Local	Imported	North America, turkey, China & India
21	Glass (fibre, tinted, louvre etc)	Local	Imported	Germany, Canada
22	UPVC tanks	Local		Local
23	Sanitary fittings (wash hand basin, shower, W.C. both tub etc)		Imported	China, Italy, Brazil and Spain
24	Tiles (wall, floor, glazed, skirting marble)		Imported	China, Italy, Brazil and Spain
25	PVC tiles	Local	Imported	China, Italy, Brazil and Spain
26	Paints (undercoats, finishing, putty)	Local	Imported	Saudi Arabia, Poland & China
27	Plumbing materials (PVC and galvanized)	Local	Imported	China, Trinidad & Tobago
29	Ordinary Portland cement	Local	Imported	Philippines, Kuwait & Cameroon
30	Electrical installations		Imported	Mexico, Zambia U.S, India & China
31	Aluminum conductive/cable		Imported	UAE & China
32	Copper overhead line		Imported	India, China & S.Arabia
33	PVC insulated wires	Local	Imported	Turkey, South Korea
34	Light bulbs, fluorescent fittings		Imported	China, Malaysia, South Africa & India
35	Light switches and socket outlets		Imported	Germany, Singapore, China, India & Brazil

Source: Researchers' market survey.

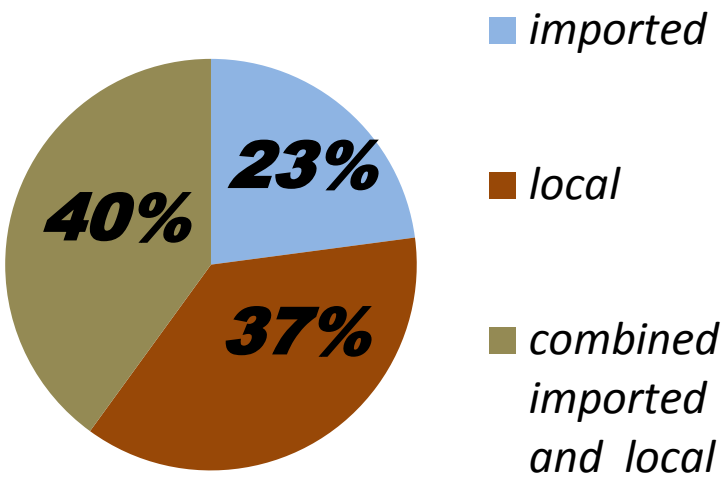

Figure 4. Pie chart representation of quantity of imported and local building materials in Nigeria.

Price differences between Local and Imported Materials.

Table 4. Price variation of imported and local building materials in some selected years between 2004 and 2011.

DESCRIPTION	UNIT	IMPORTED (Naira)						LOCAL (Naira)					
YEARS		**2004**	**2005**	**2006**	**2007**	**2009**	**2011**	**2004**	**2005**	**2006**	**2007**	**2009**	**2011**
Cement	50kg	800	1400	1600	1600	1850	1900	700	1300	1500	1450	1750	1850
Reinforcement (Diameter)	Ton												
32mm (13pcs)		86,000	96,000	96,000	110,000	165,000	165,000	74,000	90,000	90,000	96,000	140,000	140,000
25mm (21pcs)		86,000	96,000	96,000	110,000	165,000	165,000	74,000	90,000	90,000	96,000	140,000	140,000
20mm (33pcs)		86,000	96,000	96,000	110,000	165,000	165,000	74,000	91,000	90,000	96,000	135,000	135,000
16mm (52pcs)		72,000	96,000	96,000	88,000	165,000	165,000	60,500	91,000	91,000	84,000	135,000	135,000
12 mm (93pcs)		70,000	90,000	90,000	88,000	165,000	165,000	60,000	78,500	80,500	84,000	135,000	135,000
10mm (133pcs)		70,000	90,000	90,000	88,000	170,000	170,000	60,000	80,000	70,500	84,000	135,000	135,000
8mm (210pcs)		60,000	70,000	78,000	70,000	155,000	155,000	58,000	60,000	70,000	72,000	110,000	110,000
6mm (450pcs)		60,000	70,000	78,000	70,000	140,000	140,000	58,000	60,000	70,000	72,000	110,000	110,000
Tiles (floor)	m^2												
Ceramic													
Spain/Italy 300mm x 300mm		1,300	1,300	1,460	1,460	1,500	2,000						
Spain/Italy 400mm x 400mm		1,450	1,450	1,4800	1,500	1,500	2,200						
Spain/Italy 600mm x 600mm		1,600	1,600	1,500	2,000	3,000	3,500						
Glazed vitrified	m^2												
Spain/Italy 300mm x 300mm		3,100	3,100	3,400	3,400	3,400	3,800						

Spain/Italy 400mm x 400mm		3,250	3,250	3,500	3,500	3,600	4,600						
Spain/Italy 600mm x 600mm		3,400	3,400	3,500	3,500	3,600	6,600						
Unglazed vitrified	m^2												
Spain/Italy 300mm x 300mm		2,000	2,500	3,000	3,000	3,200	3,500						
Spain/Italy 400mm x 400mm		2,200	2,300	2,300	2,300	2,900	3,500						
Spain/Italy 600mm x 600mm		2,000	2,300	2,300	2,500	2,900	5,000						
PVC	m^2												
300mm x 300mm x 1.8mm thick 3.6m^2								900	1,450	1,500	1,600	2,000	2,000
Marble													
Tile 300 x 600 x 20mm thick	m^2	6,500	6,500	7,000	8,500	9,000	11,000						

Granite							
Tile 300 x 600 x 20mm thick	m^2	10,000	10,500	14,000	16,000	18,000	18,000

Source: Researchers' market survey (2012).

Table 4. Quantity of Local and Imported Building Materials

	Quantity	**Percentage (%)**
Imported	8.0	22.9
Local	13.0	37.1
Combined imported and local	14.0	40.00
Total	**35.0**	**100.0**

Source: Researchers' field survey (2012).

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