

## Construction Industry and its Constraints in Nigeria

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### **Abstract**

Nigerian construction industry, more than other industries, is closely linked with politics of the nation. Very often, the industry has been used to explain level of performances at both federal and state levels of governments. Individuals and corporate bodies have used the product of the industry to propagate success or failures. With all these intents and purposes, the construction industry has been programmed into various types of constraints. This paper reports on the study of peculiar constraints persisting in the Nigerian construction industry for the past three decades. Field survey was used to investigate these constraints. Construction professionals and contractors in Imo State were the study population and the analyzed survey data in the severity index table shows these peculiar constraints factors in their rank of severity; they include corruption, inadequate funding, rising cost of projects, lack of skilled labour, frequent abandonment of projects among others. The study recommends nine comprehensive measures that will mitigate the constraints factors in the Nigerian construction industry.

**Keywords:** *Constraints, Nigerian construction industry, Projects, Corruption, Prequalification*

### **Background to the Study**

Constraint, according to experts is a condition, agency or force that impedes progress towards an objectives or goals. Constraints describe the relationship between objectives and processes, Tam (2006). McMullen (1998) posit that constraint may cause undesirable consequences which are not supportive of organizational goals. Stein (1997) described constraint as the environment and the limitation of a system which dictates the solution. McMullen (1998) categorized the constraints into two groups: the constraints with lesser impact and the ones with greater impact. He suggested that every situation contains many relative lower impact constraints but only a single or a few higher impact constraints. The higher impact constraints are called core problems or root causes. He suggested that as time is everyone's prime constraint; individual or management should focus on identifying and acting on the higher impact of constraint

Constraints are functions of two variables: capacity and demand. A comparison of the two at the system level provides a reliable indicator of progress towards its goal (Dittmer, 1998). The constraints can be categorized into two types: internal constraint and external constraints. Internal constraints are inside the system and are usually more under control. This means that when the system cannot keep up with the demand, action needs to be taken to eliminate the constraint. But continuing such an action will in turn bring to a point where capacity exceeds demand and constraint exists in another form. External constraints are outside the system and are less under control. This means that the system has slack capacity to handle external constraints and action taken can merely minimize the effect of undesirable consequence rather than breaking the constraints. However, constraints can never be permanently broken. They merely migrate from one place to another and TOC has to re-apply. The theory of constraints (TOC) developed by Goldratt (1990) is a process aimed at identifying and removing constraints in organizational processes that are standing in the way of organizational goals. Clough *et al* (2000) describe construction projects as intricate, time-consuming undertakings. The construction project needs a good management to achieve the satisfied result including functional satisfaction, aesthetic satisfaction, completion on time, completion within budget, value for money, and health and safety (Walker 1989). Referring to Dittmer breakdown of constraints, the external constraint is more complex and it is what the construction industry in Nigeria is suffering.

### **Objectives of Study**

The study of constraints in the Nigerian construction industry has the following objectives;

1. To evaluate the key constraints that limits the progress of the construction industry in Nigeria
2. To recommend measures that can be applied to mitigate peculiar constraints in the Nigerian construction industry

### **Global View of Construction Constraints**

At global level construction constraints could be seen as necessary parameters which projects must pass through before their realization, Chua, and Shen (2005). They are guiding factors and construction management matrix for success. Chua, and Shen further analyzed construction constraint in the following order:

**Design constraints:** Design constraints are factors that limit the range of potential design solutions. In the early stage of a project only some of these constraints may be known, while others become apparent as the design progresses. Such constraints include among many others:

1. Available technology, plant, materials, labour and so on.
2. The budget.
3. Specific performance requirements.
4. Site form, boundaries and conditions.
5. Neighbouring properties.
6. Access.
7. Planning and building regulations restrictions.
8. Completion date.

It is often argued that design constraints are helpful in the development of a design, as they limit the number of feasible options and point towards an obvious solution. In the absence of a constraints at all, it can be difficult to know where to start, or to justify developing one particular solution in preference to any others.

**Technical Constraints:** Technical constraints generally refer to the processes involved in completing construction activities, and are often based on the practicality of building methods and standards. For example, in constructing a foundation, the site must be leveled, excavation completed ; then form work can be placed as well as rebar before concrete is poured. Each task must be completed before the next can begin; therefore each task acts as a constraint on the next task. Other technical constrains may relate to construction tolerances, space required for builders work, available storage or handling areas, site access routes, co-ordination of services and so on.

**Economic Constraints:** Economic constraints relate to the project budget and the allocation of resources. If the budget is inadequate, or is allocated inappropriately, then it can have a negative impact on the success of the project in terms of quality, safety, functionality and performance.

Construction projects are generally a balance between time, cost and quality. A change in one will impact on the other two. Economic constraints relate not just to the overall budget, but also to the cash flow through the supply chain. Clients must have available funds to pay for works as they proceed, and prompt payments must be made through the contractual chain. Poor management of cash flow is one of the main causes of bankruptcy in the construction industry, and cases of changing contractors through a project can cause very significant delays and additional costs.

**Management Constraints:** These can include particular shift patterns, overtime requirements, resource allocation, safety procedures, working practices, and so on.

**Legal Constraints:** Legal constraints refer to the many regulations that the activities and practices on a construction project must conform to. These most commonly relate to employment law, safety requirements, planning and building regulations requirements,

environmental requirements, and so on. Failure to conform to legal constraints can have a considerable negative impact on a project, both in terms of delay, financial penalties and possible criminal proceedings.

**Time Constraints:** This means key dates on the project schedule or project milestones. Conforming to time or date constraints is often very important in terms of the overall project completion. Time constraints specify the earliest date on which a task should be completed; the latest date by which a task should be completed; and the exact date on which a task must be completed. Phased projects may include multiple start and completion dates, with penalties if dates are missed.

**Environmental Constraints:** Environmental constraints include limiting factors concerning geographical location, geological features, hazardous materials, air pollution, excavation, noise, vibration, traffic, tree and wildlife preservation, and so on. These can often overlap with legal constraints.

**Social Constraints:** Social constraints include factors that may arise as a result of wider interest in or opposition to a project. Public concern and media pressure can often impose greater scrutiny and tighter constraints on a project, and can sometimes result in major alterations to the original plans. These kinds of constraints on the part of the public are often labeled as 'not in my backyard', or 'nimbyism'. Projects funded using public money are often subject to social constraints, as there tends to be greater interest in cost escalations, delays and so on, such as in the case of High Speed 2 (HS2), or London's Garden Bridge proposal which have caused much controversy.

**Third parties:** Not every aspect of a project is within the direct control of the client or their project team. Every project is dependent to some extent on third parties. It is important that these third party dependencies are identified and that their potential impacts are understood, quantified and managed. Third party dependencies may include; central and local government, dependent projects, unions, statutory authorities, statutory undertakers, archaeological or other surveyors, the supply market and so on.

### **Constraints in the Nigerian Construction industry**

Apart from logical constraints common to construction industries in every country, the industry in Nigeria seems to have its peculiar constraints. Some research literatures on construction prospects in Nigerian have discussed the industry's constraints under the following subheadings.

**Scope Creep:** According to Wikipedia, scope creep (also known as requirement creep, function creep, feature creep, or kitchen sink syndrome) in project management refers to changes, continuous or uncontrolled growth in a project's scope, at any point after the project begins. PMBOK fourth edition stated that scope is the sum of the products, services, and results produced in a project. It is often documented using a scope statement and a Work Breakdown Structure (WBS), which are approved by the project sponsor. Scope creep features or functions of a new product, requirements, or work that is not earlier authorized (i.e., beyond the agreed-upon scope). PMBOK® Guide describes scope creep as “adding

features and functionality (project scope) without addressing the effects on time, costs, and resources, or without customer approval” (PMI, 2008). In Nigeria's construction industry it is not uncommon to see projects dragging beyond their estimated duration because of scope creep on the client's side. When construction projects are too vague and too generic, there is bound to be scope creep on the long run.

Below are some other causes of scope creep in Nigerian construction industry.

Lack of clarity and depth to the original specification document.

1. Allowing direct [unmanaged] contact between client and team participants.
2. Customers trying to get extra work “on the cheap.”
3. Beginning design and development of something before a thorough requirements analysis and cost-benefit analysis has been done.
4. Scope creep “where you do it to yourself” because of lack of foresight and planning.
5. Poorly defined initial requirements.
6. Management promises the sun and the moon, and breaks the backs of the developers to give them just that in impossibly tight time frames.”

**Inadequate Funding:** Construction is largely capital intensive. Just the equipment alone costs millions of naira and contractors are continually faced with issues of finance. The contractor must invest on plant which is expensive in the case of civil engineering jobs, and requires cash for payment of workers' salaries, purchase of materials, etc. Coupled with these, majority of clients also don't mobilize budding contractors for fear of losing their money or becoming victims of abandoned projects. This creates a lot of pressure for contractors to source for funds to execute projects. Nigerian banks on the other hand are not so helpful to finance construction projects especially if the contractor is not yet a big player in the industry. The consequence of this slow funding is project delay

**Kickbacks:** Construction projects are often big budget capital expenditures undertaken by organizations and government. As a result of the big funds involved, the level of corruption is high within the Nigeria's construction industry. Top on the list are kickbacks, money paid to someone or a group of persons who are involved in one way or the other while prospecting the contract. In most cases, the kickbacks are so much that the contractors themselves rarely make up to what they pay out. This is not limited to government projects alone; it also cuts across private projects too.

**Poor Quality Control:** Another common challenge of Nigeria's construction industry is poor quality control. Projects embarked on are often poorly executed in terms of quality assurance.

The following are a number of reasons for prevailing challenge;

1. Greed on the part of the contractor who wants to make too much profit at the expense of quality. This particular factor is what many organizations are trying to curb by refusing to mobilize contractors until project completion.
2. Inadequate project funding is another factor that can lead to poor quality control in a construction project. When contractors don't have the needed funds to properly execute projects, they will tend to cut corners on the quality of materials used.

3. Finally, negligence on the part of some contractors is another factor that is responsible for poor quality control. When adequate attention is not given to client's specifications, there's a higher possibility of not properly monitoring the whole materials and processes used for construction.

**Abandoned Projects:** Abandoned projects are another common challenge of Nigeria's construction industry. Projects embarked on are seldom completed especially the ones contracted by the Government. This is a political as well as a corruption challenge. It is political in the event that a change of power from one tenure of government to another can lead to the abrupt termination of an ongoing construction project. These have become the fate of major capital projects embarked on by the government in the past. In most cases, the majority of contracts for those projects were awarded to party men, political associates, friends and family members of the outgoing leaders, and they might not even possess any technical knowledge needed to run the projects. According to one honourable member of Nigerian House of Representatives from Zaria Federal Constituency, over N5 trillion government projects have been abandoned across Nigeria between 1991 and 2015. On the other hand, projects are also abandoned due to corruption on the part of the contractors, the government and the public agencies involved. On many occasions, the funds allocated to major projects are stolen for personal use by the contractor or shared amongst the parties involved in approving the project.

**The constant rising of project costs:** This is one of the problems that is facing Africa's construction industry; there is a constant rise in project costs. This is practically due to the rise in prices of steel and oil, caused by the weakening of local currency against the dollar. Most companies give a quote for a project only to realize the project will cost more than they budgeted for. It is a known fact that about fifty percent of construction materials used in the industry is imported from Europe and Asian countries.

**Corruption Issues:** In most developing countries corruption is a term that has to appear as a factor that is causing development to lag behind. The construction industry is one of the industries in Africa where corruption plays a role unlike the rest of the world. Development projects of various kind and sizes have suffered a lot of setbacks at the hands of corrupt individuals and agencies. Some companies for instance are allegedly paying top African government officials to receive tenders which have brought the construction industry in to disrepute.

**Lack of Skilled Labour:** Lack of skilled labour cannot be underestimated when talking about the problems facing the African construction industry; for instance when construction opportunities rise in African countries some contractors are forced to go looking for skilled labour from other countries who always demand too high salary wages. Currently the continent is unable to produce enough skilled labor or professionals who have the ability and knowledge to handle mega projects. The latest incidence is in the construction of East Africa's standard gauge railway where the Chinese contractor was forced to bring over 10,000 workers on board from China to help the locals in building the railway.

**Safety on Site:** Another problem that the African construction sector is encountering is safety on site. There is high demand for insurance and compensation claims from serious injuries caused on sites. Since the industry is spending more on insurance and compensation because of minimal safety training and protection to workers, there will not be enough funds to boost productivity.

**Capital Supply Constraints:** As more projects are coming up in various countries in Africa, It is clear that more conservative measure to lending by the banks limits investor confidence due to increased difficulty and recession in access to credit. It is difficult for money lending firms to extend their hands of service. This is because almost all the lending services in the continent have lost confidence in borrowing construction firms' fund.

### Research Methodology

The research examined various constraints affecting the progress of the Nigerian construction industry. The study involved designing and distribution of structured questionnaire to construction experts and contractors operating in Imo state. Their response were collated and arranged as study data. Further analysis of the constraint data was conducted using Relative Severity Index RSI and listed in the table below.

**Table 1. Relative Severity Index for various constraints affecting Nigerian construction industry**

Code	Constraints	RSI	Rank
C1	Scope creep	0.620379	7
C2	Inadequate Funding	0.74678	2
C3	Poor Quality Control	0.625975	6
C4	Constant Rising of Project Costs	0.73675	3
C5	Lack of Skilled Labour	0.693256	4
C6	Abandoned projects	0.643789	5
C7	Corruption Issues	0.75467	1
C8	Safety On Site:	0.54563	9
C9	Capital Supply Constraints:	0.619965	8

### Discussion of Results

The severity index analysis of the respondents' data on various constraints affecting Nigerian construction industry listed on table1 above revealed by ranking the magnitude of their effect. Corruption is seen to be the worst constraint according to the respondents which means parties to most construction projects have used greed to frustrate the progress of the industry. Second in the ranking is inadequate funding which means that initiators and managers of construction projects do not do proper planning before execution and that has invariably affected the success of many projects as well as the industry. Third in the ranking is constant rising of project costs. This is true because of the low industrial base of the country; most construction materials used in Nigeria are imported and their importation is constantly affected by rate of monetary exchange between supply countries. Lack of skilled labour is fourth in the ranking and it is another obvious constraint. Researchers and construction experts have often orchestrated this problem because they knew how much it has affected the

speed, quality and cost of most projects in the country. Several abandoned projects across the country has made many governments to doubt the efficiency of the industry and adding to their reason for inviting foreign contractors into the country. The issue of low quality of projects executed by indigenous contraction is what construction consultants' has been working hard for the past two decades to correct and that is more the reason for prequalification criteria was introduced in the selection of contractors and award of most projects recently.

### **Conclusion**

Constraints in the Nigerian construction industry, apart from what is prescribed globally as necessary construction measures, are nothing but greed, corruption, unpatriotic, unprofessional and political misfortune. In this country, construction is all comers affair, no standard, no regulation or code, no adequate planning and sincere monitoring of projects. Government agencies trust with construction project development lacks the honesty and technical proficiency to manage such projects. The obvious consequences are the industry will continue to degenerate with low GPD; multinational construction companies will forever dominate the industry; professional bodies will remain toothless bulldogs.

### **Recommendations**

One adage says, "where there is a will there is a way". If the Nigerian construction stakeholders decide to put things right in the industry, unnecessary constraints will disappear. This study therefore makes the following recommendations.

1. Nigeria government agencies must sincerely, with least political interferences observer requalification standards for selection of contractors.
2. Public projects must be awarded on merit after prequalification.
3. Strong legal interpretations must be attached to every public project award, to check breach
4. Both clients and contractors must insure each other against breach
5. Professional bodies and contractors in the construction industry must quickly collaborate to start training and retraining of tradesmen and artisans to save the industry from collapse
6. A new Nigerian Building Code should be published, approved and circulated throughout the local governments and put at the reach of every contractor.
7. Consultants to public projects must be made to produce genuine feasibility studies on every project to determine viability and check abandonment.
8. Financing of projects must be the first priority and government should seriously consider Public Private Partnership (PPP) which has helped Europe and Asian counties to effectively develop their infrastructures.
9. Both government agencies and contractors in the industry must understand integrity, accountability and patriotism which is what Nigerian need to develop



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