

Building Partnerships for Sustainable Cost Management of Infrastructure: A Path to National Economic Development

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Outline of Presentation

- Characteristics of Nigerian Construction Industry
- What is Quantity Surveying?
 - Who is a Quantity Surveyor?
- Highlight some pitfalls and challenges associated with Cost Management of Infrastructure in Nigeria
- Proposed some strategies for improving Cost Management of Infrastructure in Nigeria
- Conclusion

Characteristics of Construction Industry

- Globally, the industry plays a key role in the economy of both developing & developed countries
 - contributing between 4-14% of the GDP;
 - generating vast amount of employment & wealth;
 - provides the infrastructure that supports other sectors of the economy.

Characteristics of Construction Industry

- Global Construction Perspectives and Oxford Economics - **10-year forecast**
 - named NCI as a “global hotspot”
 - *With potential of becoming the hub of building and construction business within the African continent.*
 - **despite the prevailing economic situation, the NCI is still regarded as one of the fastest growing in the world**

Characteristics of Construction Industry

- In recent times, the NCI has been described as a '*sleeping giant*' in terms of:
 - service delivery, and
 - capacity to satisfy needs of its clients.

Characteristics of Construction Industry

- For instance, there have been several reports:
 - rush nature of project implementation,
 - inadequate planning and budgetary provisions,
 - projects executed at higher sums (+ 30% higher),
 - abandoned or non-functional facilities,
 - consistent low productivity,
 - poor performance and collapsed buildings
 - Etc, etc.

What is cost of an infrastructure?

- Under normal circumstances, the total cost of construction is expected to be the sum of costs of:
 - materials,
 - labour,
 - equipment/plant,
 - site overheads,
 - head office cost,
 - Profit
 - Taxes

What is cost of an infrastructure?

- A former Minister , after a FEC meeting, had said:
“the FEC has noted that in spite of all the processes that we have gone through so far, including the Due Process and procurement reforms, the cost of construction in Nigeria is relatively higher than in most other countries, even within the sub-region and other parts of the world”.

What is cost of an infrastructure?

- There are several factors that could result in differences between the cost of similar facilities such as:
 - **locational differences,**
 - **time differences, and**
 - **Specifications.**

What is cost of an infrastructure?

- However, in many parts of the world particularly in Nigeria, there are other cost components that cannot be easily transparently accounted for.
 - These represents the “ghost costs”!!!

What is cost of an infrastructure?

- These costs have obvious negative implications for the:
 - key stakeholders in particular,
 - industry
 - entire society in general

Challenges of comparing cost of construction

- Cross-country cost comparisons of construction works are notoriously difficult.
- For example, comparison of international costs requires adjustment for currency conversion.
 - Using **exchange rates** can be misleading due to their sensitivity to **currency speculation** that is unrelated to the relative costs of construction.

Challenges of comparing cost of construction

- Comparisons of international productivity levels are also problematic.
 - Productivity of workers are dependent on several factors such as weather, education, training, etc. which differ significantly from one country to another.

Challenges of comparing cost of construction

- ❑ **Purchasing Power Parity (PPP)** is the preferred method of comparison across countries, because it measures the ratio of costs of a set of identical goods.
 - Development of Aggregated Construction Cost Indexes.

Objectives of paper

- 1) situate the **Cost Management role of Quantity Surveyors** in shaping these and other many similar narratives with regards to sustainable development of infrastructure in Nigeria,
- 2) identify some key **cost management pitfalls and challenges** in Nigeria, and
- 3) proffer a proposal requiring sensitisation and partnerships with other critical stakeholders.

What is Quantity Surveying?

- Brandon (1990) describes *Quantity Surveying* as “an amalgam of several other disciplines (such as mensuration, construction technology, economics, law, accountancy, management, information technology, etc.) within the unique context of the construction”.
- The NIQS (2004) define *Quantity Surveying* as “the profession that is concerned with financial probity and achieving value for money in the conceptualization, planning and execution of building and engineering projects and developments”.

Who is Quantity Surveyor?

- According to the RICS (2015), Quantity Surveyors are the cost managers of construction,
 - which extends across **all real estate** (including residential, commercial, industrial, leisure, agricultural and retail facilities); and
 - **infrastructure markets** (including roads, railways, waterways, airports, sea ports, coastal defences, power generation and utilities, process engineering such as chemical engineering plants or oil rigs).

Who is a Quantity Surveyor?

- Quantity Surveyors are involved with:
 - **capital expenditure phase of a facility**, which is the feasibility, design and execution phases, and
 - extension, refurbishment, maintenance and demolition of a facility.
- Hence, QS training cover
 - all aspects of construction over the whole life of the facility,
 - how to manage cost effectively, balancing quality and value with individual client needs.

Who is a Quantity Surveyor?

- Quantity Surveyor's role has evolved from purely *costing alternative design options to pro-actively advising on various aspects of the value of construction projects*, even beyond issues that can be quantified in monetary terms (Ferry and Brandon, 1999).
- Increased **Scope and Type of services** provided within and outside the construction sector (Smith, 2003).

Quantity Surveying Knowledge-base (Competencies)

- Historically, the distinctive competencies or skills of the Quantity Surveyor were associated with measurement and valuation:
 - which provided the basis for the proper cost management of the construction projects in the context of forecasting, analysing, planning, controlling and accounting.

Quantity Surveying Knowledge-base (Competencies)

- Willis *et al.* (1994) summarized the body of knowledge of the quantity surveyor as:
 - preliminary cost advice; cost planning including investment appraisal, life-cycle costing and value analysis; procurement and tendering procedures; contract documentation; evaluation of tenders; cash flow forecasting, financial reporting and interim payments; final accounting and the settlement of contractual disputes; cost advice during use by the client; project management; and specialist services such as expert witness, arbitration, loss assessment, etc

Quantity Surveying Knowledge-base (Competencies)

- The Cost Management competency of Quantity Surveyors entails
 - the utilization of knowledge of geometry to determine the quantity of work to be performed from the designs prepared by the right professionals in accordance with the relevant Standard Method of Measurement (SMM) (whilst applying the most appropriate unit such as m, m², m³, Kg/Ton, Number, Item and Sum) and
 - the cost of doing the work.
 - Perhaps, of these two independent processes, the most difficult and challenging is the determination of cost of doing the work.

Quantity Surveying Knowledge-base (Competencies)

- Skillful determination of the cost of doing work is not limited to the knowledge of costs of labour, material, equipment and other direct costs.
 - It is also dependent upon the interplay of the design variables (morphology), economic climate, impact of design decisions and construction processes on construction and operational costs, the estimator's choice of alternative means of construction and methods of doing the work amongst other factors.

Some Pitfalls of Cost Management of Infrastructure in Nigeria

- Although the NIQS has, in recent years, taken steps to commence enlightenment and sensitisation visits to public agencies and institutions such as the Fiscal Responsibility Commission, the Independent Corrupt Practices Commission and the Financial Reporting Council of Nigeria,
 - there are still apparent numerous evidences of need for further synergy between other public sector agencies as well as laws and regulations that play various roles or are applicable to cost management in the procurement of public infrastructure in Nigeria.

- Some of the agencies/institutions/law/regulation includes:
 - Bureau of Public Procurement,
 - Office of Auditor General of Federation,
 - Public Procurement Act (2007),
 - Procurement Procedure Manual (2011) and
 - Financial Regulations.

Bureau of Public Procurement

- The current procurement practice that is opened to any person that has attended the **procurement conversion course**, irrespective of the original professional background is creating more problems than solving any.
 - Although there should have been merit in having experts in various fields of human endeavour possessing procurement training, such that better informed decisions can be taken based on **sound context-specific knowledge and experience**. Unfortunately, that is not the case.
 - **Emergency experts** have been covertly created and are making **very costly choices on subject matter that they aren't sufficiently competent to act**.

Bureau of Public Procurement

- Section 5 of the Public Procurement Act (2007) is concerned with the functions of the Bureau of Public Procurement.
- To date, there is no visible systematic mechanism that is in public domain that the Bureau fulfils the requirement of Section 5(e) which requires it to
 - “monitor the prices of tendered items and to keep a national database of standard prices”.
- For the construction domain which accounts for more than 70% of the value of annual public sector procurement by all tiers of Government, synergy with the NIQS and QSRBN would facilitate the fulfilment of this function.

Bureau of Public Procurement

- The fulfilment of Section 5(m) which requires the Bureau to **“prepare and update standard bidding and contract documents”** would be better met in the construction sector with greater synergy and partnership with the NIQS/QSRBN as was the practice during the pre-PPA era.
- Similar opportunities also exist in the fulfilment of functions related to the **conduct of trainings (5s), research and surveys (5j)**.
 - Synergy with other relevant agencies/institutions would yield similar results in the procurement of non-construction related items.

Office of Auditor General of the Federation

- There are increasing embarrassing assertions by Federal Auditors on matters related to management of construction contracts.
 - some are due to outright non-appreciation of age-long best practices in construction contract administration,
 - others may have been as a result of conflicts with subsisting regulations.

Office of Auditor General of the Federation

- Section 35(b) of the PPA, 2007 and Section 708 of the Financial Regulations converses that “once a mobilisation fee has been paid to any supplier or contractor, no further payment shall be made to the supplier or contractor without an interim performance certificate issued in accordance with the contract agreement and that on no account should payment be made for services not yet performed or for goods not yet supplied”.
- This is being interpreted to criminalise the age-long practice of payment for materials on/off-site in line with best practices.

Office of Auditor General of the Federation

- Whilst Section 59(1) of the Procurement Procedures Manual rightly provides that “in respect of VAT registered contractors or suppliers, the amount of VAT on the value of work done, value of goods supplied or value of services provided, should be paid by the Procuring Entity, provided such goods or services are not exempted or not excluded from VAT”,
- Section 59(2) contentiously provides that “such payment of VAT will apply in respect of advance payments as well”.
 - This is against the global best practice in construction literature that views an advance payment as a loan for the prime purposes of enabling a contractor to mobilise to site or sometimes to procure materials that are often prone to frequent price fluctuation, which is recoverable in instalments or as agreed under the contract.

Office of Auditor General of the Federation

- There are increasing and very disturbing attempts to erode professional best practices in cost and contract management of public infrastructure in Nigeria.
 - Phenomena such as **Preliminaries, Variations, Fluctuation and Contingencies** are under threat of application in recent years where people of all manners of background are appointed as either procurement officers or auditors of infrastructure projects.

Challenges of Cost Management

- *Wrong method of estimation*
 - Inadequacies of the input, process and technique of estimating cost of construction works in Nigeria.
 - Faulty assumptions and baseline data

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Causes of 'high cost' of construction

- *Wrong method of estimation*
 - Although more perverse in the engineering sector, even the building works suffer poor estimating practices.
 - absence of reliable inputs (such as labour and equipment outputs) for establishing unit rates,
 - non-conformity to SMM,
 - inadequate training and experience in cost estimation,

Other pitfalls of Cost Management of Infrastructure

- *Fraudulent practices and kick backs*
 - occasioned by greed and perpetrated by major players in the construction industry
 - rank and file of contractors, consultants and public clients.

Other pitfalls of Cost Management of Infrastructure

- *Fraudulent practices and kick backs*
 - An investigation by the World Bank has found that malpractices are rife in construction projects (particularly roads) in the forms:
 - **collusion** (bidders agreeing among themselves who would win the bid),
 - **false documentation** (typically involving submission of false documents to qualify to bid) and
 - **fraud** (usually over billing or undersupplying of materials).

Causes of 'high cost' of construction

■ *Political Interference*

- In awarding contracts, Government agencies:
 - are teleguided by the political heavy weights to award contract to party stalwarts at very high prices.
 - irrespective of apparent deficiencies in delivery potentials
- disregard Consultants' estimates and where possible manipulate them.
- give very short time to consultants to prepare documents for tendering purposes.

Causes of 'high cost' of construction

- *Inadequate project planning*
 - No adequate time allowed for technical input, feasibility studies and designs
 - No adequate research is carried out to determine the real cost of projects before contracts are awarded.

Strategies for improving Cost Management of Infrastructure

Global Partnership!

- Adoption of the Integrated Cost Management System (ICMS) in the **curricula of institutions** offering Quantity Surveying in Nigeria and **for practice** in Nigeria as part of the 49 globally-eminent professional associations.
 - ICMS provides a high-level structure and format for classifying, defining, measuring, recording, analysing and presenting life cycle costs and carbon emissions associated with construction projects and constructed assets.
 - Mechanisms would need to be enshrined to ensure both universality and particularity of content that allows for appropriate comparison.

Industry-level Partnership!

- The convocation of a construction summit of both internal and external stakeholders across the entire value chain of the industry has become imperative.
 - This will include all the major professional bodies in the industry as well as stakeholders such as SON, MAN, BPP, OAGF, etc.
 - Dispassionate and knowledge-driven non-sentimental discussions should be held to define the scope and boundaries of each professional discipline within the context of cost management of infrastructure projects
 - Committing to ways and means of working together to provide value-added services to our clientele and public.

Profession-level Partnership!

- The NIQS in collaboration with the QSRBN and other stakeholders should actualise the establishment of a robust national construction cost database that will have costing templates for all categories of construction projects,
 - that will enable the determination of cost bands/ranges/yardsticks/limits for roads, bridges, railways, public buildings, and housing projects
 - show central tendencies, variations and dispersions across geo-political zones, environmental and geological zones.
 - This will fulfil both the function of BPP and the aspirations of various stakeholders in public and private sectors.

Project-level Partnership!

- Systematic project Scope Management that firmly establishes the requirements and features of the project at the onset before getting started, preparing the project team to sign off on capabilities and responsibilities, staying diligent through smart contract management, human resource management through effective motivation, and project tracking and application of early corrective actions.
- Value engineering/management
 - careful analysis of each function and the elimination or modification of anything that adds to the project cost without adding to its functional capabilities

Inter-sector Partnerships!

- In partnership with government agencies such as RMRDC, NASENI, MAN, SON that will ensure that relevant construction materials, which the country is heavily blessed with, are appropriately harnessed for the country's use.
 - For example, Nigeria is blessed with the four basic materials used in construction; cement; reinforcements; aggregates-granites, sharp sand; and timber.

Inter-sector Partnerships!

- In collaboration with academic institutions and professional firms, conduct of research to establish reliable cost information system and realistic labour outputs.

Thank you for Listening!